The MOUND BUILDERS.

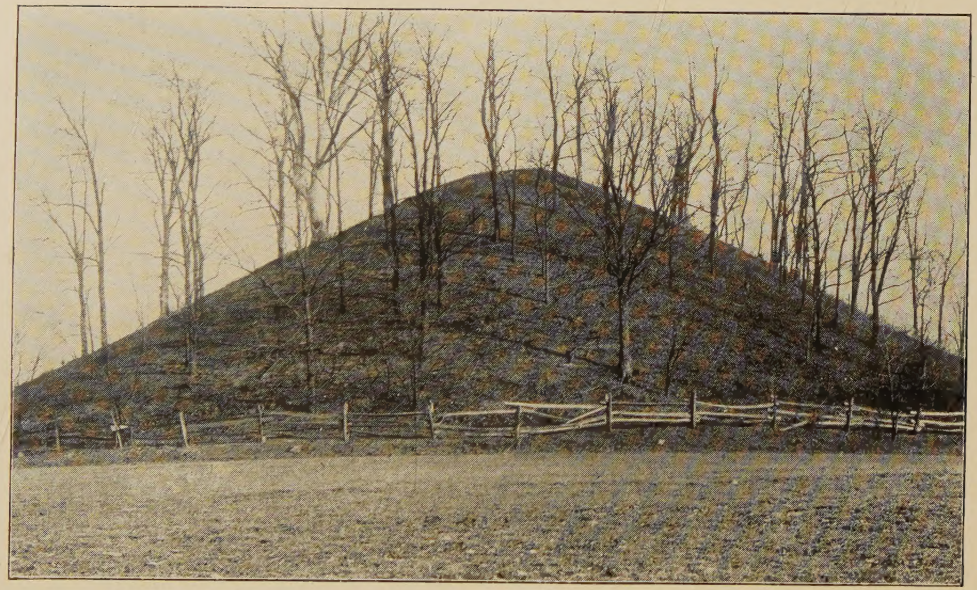

FIG. 1.—GREAT MOUND NEAR MIAMISBURG.

[SEE P. 59.

THE

MOUND BUILDERS;

BEING AN ACCOUNT OF A REMARKABLE PEOPLE THAT ONCE INHABITED THE VALLEYS OF THE OHIO AND MISSISSIPPI, TOGETHER WITH AN INVESTIGATION INTO THE

ARCHÆOLOGY OF BUTLER COUNTY, O.

By J. P. MacLEAN,

Author of "The Highlanders in America," "History of the Clan MacLean," "Fingals Cave," "Introduction to the Study of St. John's Gospel," "Manual of the Antiquity of Man," "Mastodon, Mammoth and Man," Norse Discovery of America," etc., etc.

Illustrated with over One Hundred Figures.

SEVENTH EDITION.

CINCINNATI:
THE ROBERT CLARKE COMPANY.
1904.

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PREFACE TO THE REVISED EDITION.

The favorable reception accorded the previous editions of this work has induced the preparation and publishing of this edition. The general inquirer into American antiquities desires a handy reference book on the subject of the Mound Builders placed in a readable form. As this work, in the past, has supplied that demand, it is believed that, with corrections and additions, it will still be acceptable, and worthy of the patronage of the general public.

The people who constructed the vast monuments of the Ohio and Mississippi Valleys will always be an object of interest, because the mystery surrounding the mounds and mural remains creates a fascination which is greatly increased by personal investigation. The student of nature, and especially that class given to the study of man, must meditate upon the scenes which once took place while these cyclopean works were in process of erection. That class given to imagination will form pictures of the toiling multitudes, dressed in a garb not unlike that used by the ancient Mexicans. In short, the life of the people of Mexico, at the time of the Spanish conquest, will well up before the mind.

If the mounds be separated from their history there

will still be an interest awakened, even among that class who take no part in original investigation, though desiring such information as may be obtained. The mounds are of such a nature as to command a passing notice from every one who looks upon them. From this fact it may be presumed that early attention was called to the ancient earthworks of Ohio. The first to be recorded were those at Circleville, in Ohio. On October 17, 1772, Rev. David Jones, who had spent some time among the Western Indians, made a plan and computation of them. In all probability the first of the ancient earthworks of Ohio that were carefully surveyed were those at Marietta. The public prints began to give accounts as early as the year 1785. Drawings of the Marietta works, made by Captain Jonathan Heart in 1787, were placed in Yale College. The first general survey of the western monuments was made by Caleb Atwater in 1819. In 1848 the Smithsonian Institution published, under the title, "Ancient Monuments of the Mississippi Valley," the surveys made by Squier and Davis, together with the notes and plans furnished by others who had taken an interest in the matter. The conclusions therein contained were largely based upon those given by Atwater some twenty-nine years before. This more recent publication constituted a thorough and systematic exposition of the entire question relating to the Mound Builders. This great work elicited attention from foreign as well as American archæologists, and notwithstanding all the investigations made since, it still remains the one standard work on the subject. The result of this work was to promote a more active spirit

of inquiry upon all questions connected with American antiquities, which has continued until the present time.

It is admitted that the present work, for the most part, contains such information as is already available; but, as it presents all the essential facts to the general reader, without being burdened by elaborate speculations, and to the specialists the chapter on the archæology of Butler County, Ohio, thus forming a new contribution to the study, it may still serve to arrest that interest which seems to be unabated. The design, then, of this work, is twofold, as above implied.

As already intimated, in the preparation of this work, advantage has been taken of all the important publications on the subject. Except in a few cases I have purposely abstained from burdening the text with references, although I have occasionally followed closely the descriptions as given by others.

Most of the engravings were made especially for this work, some having been taken from old designs, and others from original plans.

I had engaged in extensive examinations of the ancient remains before the original publication of this work, and since its publication I have gone even more extensively into the examination of the subject, and entered into a wider field, but, after due consideration, I have seen no reason for changing the views I first gave to the public.

J. P. MacLean.

Franklin, O., Dec. 14, 1903.

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THE MOUND BUILDERS.

CHAPTER I.

PRELIMINARY OBSERVATIONS.

Origin of the Name—Where Found—Description of the Country—Distribution of the Works—Principal Localities—General Classes—Enclosures—Sites.

An ancient race, entirely distinct from the Indian, possessing a certain degree of civilization, once inhabited the central portion of the United States. They have left no written history, and all that is known concerning them is gathered from the monuments consisting of mounds, enclosures, implements, etc., which they have left behind. These remains have been carefully examined, and after long and patient investigations, the archæologist has arrived at certain definite conclusions, and so apparently accurate are they that we may safely say that we are very well acquainted with this lost race. By what appellation they were known during their existence is past finding out. They have been called the Mound Builders on account of the

innumerable mounds which they erected, and which remained until the advent of the white man. Their works are traced through a great extent of country. They are found in the western part of the State of New York, on the east; thence westwardly along the southern shore of Lake Erie, through Michigan to Nebraska, on the west, and as far as Isle Royal, and the northern and southern shores of Lake Superior, on the north. From this line they extend to the Gulf of Mexico. They occur in great numbers in Ohio, Indiana, Kentucky, Tennessee, Illinois, Wisconsin, Missouri, Arkansas, Texas, Louisiana, Mississippi, Alabama, Georgia, and Florida. They are found in less numbers in North and South Carolina, western parts of New York, Pennsylvania, and Virginia, and Michigan, Iowa, and a portion of the Mexican Territory.

By some it has been contended that the Mound Builders did not penetrate into the State of New York, and the remains there found belong to a later age and another people. Others would have us believe that they erected the mounds found in Oregon and other districts or regions of the far West.

In choosing this vast region lying between the great lakes and the Gulf of Mexico, and extending from the Alleghanies to the Rocky Mountains and consisting of a great system of plains, the Mound Builders exercised great foresight and wisdom. Along one of these plains, inclining towards the east, flow all the streams from the west that enter into the lower Mississippi. Of equal extent is another plain descending from the north, along which flow the tributaries of the Ohio, and even the Mississippi itself, until it reaches the Missouri. Still another plain descends from the Alleghanies, and is drained by the Cumberland and the Tennessee with their tributaries. Along the broad levels drained by this vast river-system the pre-historic remains of man abound. This whole country affords a perfect system of navigation. The Alleghany rises on the borders of Lake Erie at an elevation of nearly seven hundred feet above the level of the lake and one thousand three hun-

dred feet above the sea. A boat may start from within seven miles of Lake Erie, and almost in sight of Buffalo, and float down the Connewango or Cassadaga to the Alleghany, thence into the Ohio, and finally into the Gulf of Mexico, the whole distance being two thousand four hundred miles. Add to this the great natural advantages and the fact that this is pre-eminently the garden spot of North America, with almost innumerable other considerations, we may be able to judge of the wisdom of the Mound Builders.

Distribution of the Works.—These works are very irregularly distributed, being found principally along the river valleys. They are only occasionally met with in the hill or broken country, and when thus found are always of small size.

Their number is very great; in Ohio alone there are not less than thirteen thousand, including both mounds and enclosures. Within a radius of fifty miles from the mouth of the Illinois River, in the State of Illinois, there are about five thousand mounds. All the mounds, located in the territory occupied by the Mound Builders do not belong to that ancient people, for many of them have been constructed by the Indians, and doubtless many in Ohio have been assigned to the epoch of the former, when in reality they belong to the latter.

In the irregular distribution of the works, it is noticed that in certain localities the remains are very numerous, and from this fact it is easy to point out their principal seats, or where the population was dense. In Ohio this is found to be in the vicinity of Marietta, Athens, Portsmouth, Chillicothe, Circleville, Newark, Springfield, Alexandersville, Middletown, Eaton, Oxford, Hamilton, and Cincinnati. Smaller settlements are found throughout the different parts of the State.

General Classes.—The ancient remains, composed of works of earth and stone, naturally divide themselves into two general classes, viz.: Enclosures and Mounds; and these again embrace a variety of works diverse in form, and designed for different purposes. The first is characterized by being bounded by embankments, cir-

cumvallations, or walls, and include fortifications or strongholds, sacred enclosures, and numerous miscellaneous works, mostly symmetrical in structure. Under the second head we have the true mound buildings which constitute one general or single system of works, and include what has been specially designated, sacrificial, temple, sepulchral, symbolical and anomalous.

Enclosures.—The enclosures, to the general observer, form the most interesting class of these remains. They are massive, sometimes of great dimensions, and required great labor in their construction. Their number is great, Ohio alone containing over one thousand five hundred of them. They are composed of clay,—sometimes of stone,—the walls having a height ranging from three feet to thirty, and enclosing areas of from one acre to four hundred. Enclosures of from one to fifty acres are common; of two hundred acres not infrequent, and of greater extent only occasionally met with.

The area enclosed is not always a standard for judging the amount of labor expended in the erection of the work. "Fort Ancient," on the Little Miami, in Warren County, Ohio, has between four and five miles of embankment, yet the entire amount of land embraced within the walls is only a little over one hundred acres.

A large proportion of the enclosures are regular in outline, being constructed in the form of the square, circle, parallelogram, ellipse, and polygon,—the first two predominating. The regularly formed works occur on the level river-terraces, and the irregular works, being used as places of defense, are made to conform to the nature of the brows of the hills upon which they are situated. The square and circle frequently occur in combination, and are either directly connected with each other, or else by avenues enclosed by parallel walls. Nearly all the embankments give evidence of having been fully completed. A few remain which were left in an unfinished state. The walls are usually accompanied by a ditch either interior or exterior to the embankment.

From this ditch the earth was taken for the foundation of the walls. Where the ditch does not occur, pits, or excavations are usually found in the immediate vicinity.

Sites.—In selecting the sites for these earth-works the Mound Builders were influenced by the same motives which governed their European successors. The country is very attractive and the broad alluvial terraces overlook the flowing rivers, and the capabilities for development which fascinated the eye of the white man existed when it was made the resort of the numerous population of by-gone times, and the features sought for by the modern were equally of advantage to the ancient.

Attention was called years ago to the fact that nearly every town of importance in the valleys of the Ohio and the Mississippi and their tributaries is founded on the ruins of this ancient people. To the names of those already mentioned, other sites might be added, such as Norwalk, Dayton, Xenia, Frankfort, St. Louis, Chicago, Milwaukee, and so on almost indefinitely.

The river-terraces or bottoms, upon which they occur, were selected because the rivers are the great natural highways, and afford the best means of communication among a primitive people where settlements are widely distributed; and not only because the rivers serve as the easiest mode of transportation, but also are filled with their many varieties of fish, and the valleys abound in game, fruits and rank vegetation. These valleys afforded every advantage which the mind could desire.

Where the alluvial terraces, or river bottoms, are most extended, there the principal monuments will be found. At the confluence of streams, where the valleys are broadest, some of the most extensive works are situated. The level bottom lands gave them a rich, warm and quickening soil, easily tilled, and furnished them the most desirable places for the erection of those structures within which they performed their mystic rites and ceremonies. They were afflicted by the inroads of a hostile people, and in this hour of danger nature

had arranged for their assistance in giving them high bluffs. Upon these bluffs, or hill-tops they erected their works of defense, choosing such as were best calculated for constructing strongholds that might overlook their settlements.

CHAPTER II.

DEFENSIVE ENCLOSURES.

The Action of Water—General Description—Fort Ancient—Fortification Near Bourneville—Near Carlisle—Remarks.

Through the lapse of countless ages the rivers have been cutting their deep valleys and, in a measure, dividing the vast sedimentary basin extending from the Alleghanies to the Rocky Mountains. The gradual wasting of the water has made shallow depressions in the alluvial plain, writing its record in the broad terraces that mark the deserted levels. These table-lands are indented by numerous ravines, and the junctions of one stream with another have formed tracts considerably elevated, and almost entirely separated from the main terrace. From the effect of the water we have valleys, gorges, ravines, bluffs, headlands, and hills. The table-lands bordering on the valleys have been so wasted by the action of water as, in numberless cases, to present sides difficult of ascent, and in not a few almost absolutely inaccessible. These hills are sometimes surrounded on three sides by deep ravines and the bluff on the valley, leaving simply an isthmus, by which one may easily pass to the broad terrace. Many of these bluff headlands and isolated hills, with their broad and level summits, present every requisite for a stronghold. Where such hills are in the vicinity of an extensive valley, the military works may be seen on the one best adapted for purposes of defense. These defenses show great labor and skill; the walls extend a little below the brow of the hill and vary in height and solidity, as the declivity is more or less perpendicular. The side most exposed to attack and the

approaches are protected by trenches and overlapping walls more or less numerous in different forts. The trench is usually on the exterior of the wall. The gateways in the walls, situated at the points most easy of approach, are guarded by overlapping walls, or a series of them, and in some cases accompanied by a mound rising above the rest of the works, probably designed for both observation and defense. Great engineering skill is invariably displayed in protecting the points most exposed to attack, and care has been exercised against any flanking movement that might be made by an enemy.

A large number of the defensive works occupy the peninsulas formed by the bends of streams, and consist of a line of ditch and embankments or several lines carried across the isthmus, and not infrequently diagonally from the banks of one stream to the banks of another. The attention of the reader will here be called to those of the defensive works.

Fort Ancient.—No work on the Mound Builders would be complete without a description of Fort Ancient, the most celebrated, and the one most generally known of all the fortifications of this people. It is situated on the east bank of the Little Miami River, in Warren County, Ohio, and about thirty-three miles northeast of Cincinnati. It has been frequently surveyed, and much has been written concerning it, so that, in this place, it will not be necessary to give an extended notice of it. Reference to the accompanying engraving will assist the reader in forming a conception of the structure.

The terrace, upon which the fort is located, is very difficult of access from the west. The road leading from Lebanon to Chillicothe passes through it on the north, and its descent into the valley is steep and winding. A few years ago the enclosure for the most part was covered with a primitive forest, with a superabundant undergrowth consisting chiefly of blackberry bushes.

NOTE.—The engraving of Fort Ancient is reduced from Squire and Davis' "Ancient Monuments."

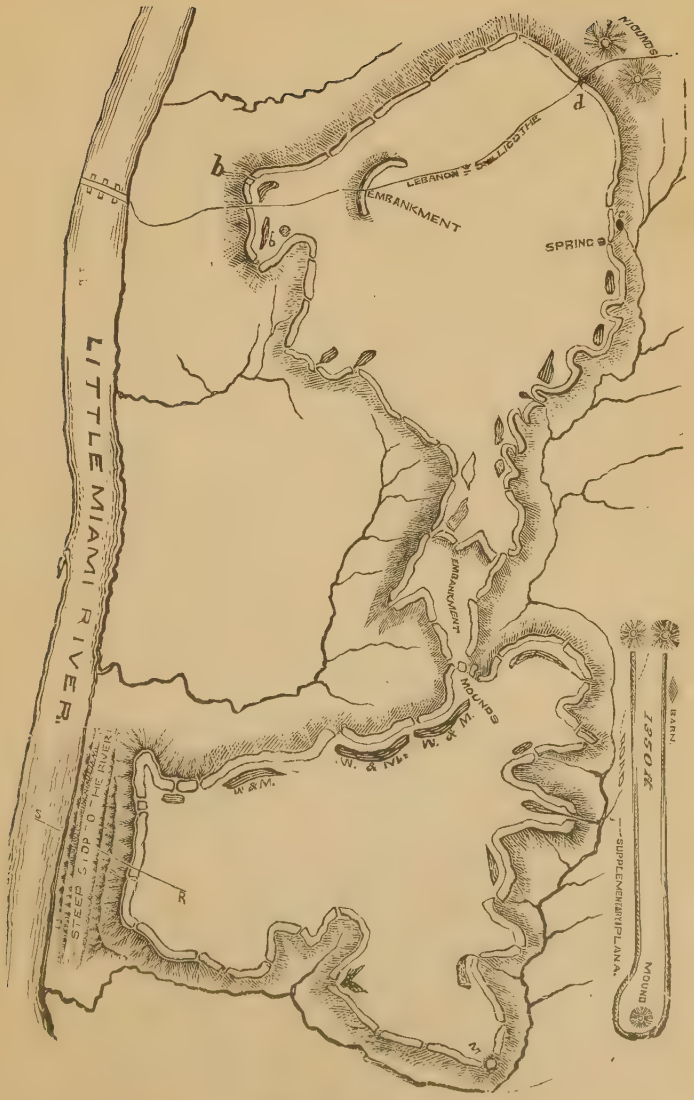


FIG. 2.—FORT ANCIENT.

It has already been stated there are about five miles of wall enclosing an area of a little more than one hundred acres. The embankment is composed of a tough, diluvial clay, ranging from five feet to twenty in height, and averaging between nine and ten feet, and contains six hundred and twenty-eight thousand eight hundred cubic yards of excavation.

The hill upon which the work is located is a level plain, divided into two parts by a peninsula, its summit being two hundred and thirty feet above the level of the Little Miami. The position is a strong one. On the west, towards the Little Miami, is a precipitous bank of two hundred feet. Two ravines originate near each other, on the east side and, diverging, sweep around the hill and enter the river, the one above and the other below the work. On the very verge of the ravines the embankment is raised, and winds around the spurs and re-enters to pass the heads of gullies, and in several places is carried down into ravines from fifty to one hundred feet deep. Where the work is most exposed to an enemy it is of the greatest solidity and strength. At the isthmus the walls are twenty feet high. Where the Chillicothe road enters from the west, the wall is fourteen feet high by sixty feet base. The south division is naturally impregnable to any assault that could be made by a primitive people. In order to protect themselves should the north division be carried, two crescent walls have been thrown across the isthmus, with the convex side towards the north. A little south of these are two mounds, situated at the narrowest part of the isthmus. On the steep slope of the southern portion of the hill where it approaches nearest the river, as a farther precaution have been constructed three parallel terraces, which command a fine view of the valley in both directions. Some, however, have regarded these embankments as land-slides.

There are over seventy gateways in the embankment, having a width of from ten to fifteen feet. These could not have all been for places of ingress and egress. I noticed, during a visit to the place in the summer of

1866, that some of them faced the precipitous ravines, with made earth thrown out. These appeared to be intended for outposts for sharpshooters. By some they are regarded to have been places for block-houses or bastions composed of timber. The walls are not accompanied by a ditch, but within the work there are not less than twenty-four reservoirs, which, in connection with the springs, would supply sufficient water for any number which might there be besieged by an invader.

At numerous points are found large quantities of water-worn stone which, after an incredible amount of labor, have been carried from the river below. Near the exterior of the eastern wall of the north division are two large mounds from which start off two parallel walls that continue for a distance of thirteen hundred and fifty feet, when they suddenly come together, enclosing another mound at the most eastern extremity. These walls are now, owing to the plow, almost entirely obliterated. They are shown in the supplementary plan.

Mr. Isaac Peacock, for many years county surveyor of Warren County, while making a survey of this fort, discovered a cave in the side of the hill. This was duly noted in his field notes at the time, but in searching for these notes, in order to place them in the hands of the author, they were nowhere to be found

In order to appreciate this, the most interesting remains of antiquity which this country affords, and to gain a fair understanding of it, it is necessary to see and examine it in person.

Fortification Near Bourneville.—In respect to the magnitude of the area inclosed, the largest fortification in the country is that near Bourneville, twelve miles west of Chillicothe. The hill upon which it is situated is about four hundred feet high, and remarkable for the general abruptness of its sides. It projects into the broad valley of Paint Creek—being washed on two sides by small creeks. Its summit is a broad and fertile plain with depressions, some of which contain water during the entire year, and one covering about two acres.

The fortification consists of a stone wall, two miles and a quarter in length, and encloses an area of about one hundred and forty acres. The structure does not now present the features of a true wall, but has the appearance of having fallen outwards. There are indications along certain parts of the line that it was regularly faced on the exterior.

The wall is carried round the hill a little below the brow, save where it rises to cut off the narrow spurs and to separate the hill from the land beyond. Upon the western face of the hill, the wall covers a space varying from thirty to fifty feet in width, and resembles the protection walls along the embankments of railroads where they are exposed to the action of large streams. Along the eastern face of the hill the wall is heavier, with a height of four feet and a base of fifteen or twenty feet. On this side the hill's declivity is less abrupt. The isthmus, which is seven hundred feet wide and the easiest point of access, has the heaviest wall. On this isthmus the amount of stone was so great that after two farmers had removed enough to form a line fence between their lands, their removal is hardly perceptible. The wall is continuous save at the gateways, and on one point of the hill where it is so precipitous as to be inaccessible. The work contains five gateways, three of them being on the isthmus. At the gateways the amount of stone is four times as great as at any other point, and constitutes broad mound-shaped heaps. Originally there was still another gateway, but for some reason only known to themselves, they saw fit to close it up. The mound-shaped heaps at the gateways exhibit the marks of intense heat, which is also discernible on certain other points of the wall. Within the enclosure are two stone mounds burned throughout. These are located near the line of the wall commanding the broadest extent of country. These burnt stones prove that powerful fires have there been maintained for long periods, and undoubtedly used as signals of alarm. Most of the wall is covered with gigantic forest trees twisting their roots among the stones, and assisting to dislodge them from

the position in which they were placed by the builders. This wall may have originally been regularly laid up. That it is now completely in ruins is not singular when the great lapse of time is taken into consideration, and the fact that it is situated upon a yielding and disintegrating declivity, and that successive forest trees, in their growth and decay, have done much to assist in its demolition. The wall was, probably, on an average, eight feet high with equal base. A fort of this description, to a primitive people, must have been impregnable. The fortification overlooks a number of extensive groups of ancient works, and must have been to the people of the valley what the block-houses and forts were to the first white settlers of this country.

Fortification Near Carlisle.—Among the most important works of the defensive order is that situated in Warren County, about two miles west of Carlisle Station, Ohio. As public attention has not been called to it, a somewhat minute description will here be given. My attention was called to it in the summer of 1876 and on the 31st of August of that year I made a hasty visit to it. An incomplete survey of it was made September 5th, 1875, by Messrs. S. H. Binkley and C. E. Blossom, both of whom are very much interested in American antiquities. To this survey I made observations of my own, and certain measurements which may not be absolutely accurate.

This work is situated on the summit of a hill a few rods west of Big Twin. The hill is bounded on the north and south by deep ravines; on the east by a precipitous bluff, with a declivity varying from one hundred and twenty-five to two hundred feet. On the east of this bluff is an alluvial terrace leading to the Big Twin. This terrace is divided into two parts, an upper and lower, formed in the direction of the stream. On the west the hill is connected with the level lands by a broad peninsula. The wall is not accompanied by a ditch, and is situated on the brow of the hill, except on the northern side, where it occurs a little below. The wall, for the most part, is made of surface material,

although limestone is found in the southwestern gate. On the west, where the enclosure is most exposed, are discovered three walls. The entire length of the wall, on the direct line of the middle wall, is three thousand six hundred and seventy-six feet, and encloses an area of from twelve to fifteen acres. The length of the wall on the Twin bluff is eleven hundred and ten feet. The interior is cultivated, and when I visited it was planted in corn, which made it very unfavorable for practical observation. A part of the wall is under cultivation, but the greater portion is covered with a thick undergrowth of briars, which makes it almost impossible to pass upon it. In some places the forest trees are still growing upon it. Within the enclosure were originally two stone mounds and one stone circle. The circle was near the center of the enclosed area. The proprietor informed me that the circle was twenty feet in diameter and three feet in height when he obtained possession of the land. Some of the oldest settlers remember it to have once been not less than eight feet high. The amount of stone in the two mounds and circle was so great as to be of sufficient importance to the white man that in order to obtain it a roadway was cut from the brow of the precipice down to the valley below. Hundreds of wagon loads were removed and used in building dwelling houses, barns, wells, etc. Depressions now mark the spots where the mounds once existed, and only broken limestone tells where the circle once stood.

Of the walls to the west the exterior one is the heaviest, and is composed of clay. It is removed to quite a distance from the middle wall and encloses considerable more territory. The gateway is in an orchard, but the greater portion in a meadow. The plow is fast demolishing all these walls on the peninsula, though they are still raised above the surface from two to four feet. Where the plow has not touched the wall the base is much narrower.

On the northeast corner of the work is a graded way of eight hundred and four feet leading to the bank of Twin. At three hundred and twenty-four feet the

graded way reaches the upper terrace, or the bottom of the hill. Here we miss fifty-seven feet of the embankment, owing to its having been cut away by the encroachment of the stream in the north ravine. From the wash I distinctly traced the embankment two hundred and ninety-seven feet, or to within one hundred and twenty-six feet of the bank of Twin. The remaining distance is very indistinct, owing to its having been almost entirely obliterated by the plow. At the point where the embankment approaches Twin, the bank of the latter is perpendicular, having a declivity of thirty-one feet. The graded way follows the bank of the stream in the ravine until it reaches within one hundred and forty feet of Twin, where it diverges, and forms a straight line. In taking the grade or fall of this graded way as it descends from the fort or the bluff, I found it to be where it is steepest one foot in two and one-half; at another point, one foot in three and one-half, and near the foot of the hill, one in five. Where this way reaches the wall of the enclosure, there is a wash through which the water passes during rains. This wash was originally, I suppose, a narrow gateway used for the purpose of ingress and egress. Why this graded way was constructed I can only conjecture. It is evident that on the bluff it was for the purpose of making the ascent more easy, and in this work nature assisted them by throwing out a partial embankment. The embankment along the terrace, however, I can account for only on the supposition that when the Mound Builders occupied this country, the terrace was a swamp. Its direction from Twin indicates that it was a passage way for those coming from or living on the east side of Big Twin Creek.

On the southeast corner of the fort is another way leading to the second or lower river-terrace. This way is so remarkable that those who have seen it have supposed it to be artificial. Upon examining it I was at once led to the conclusion that it had been formed by the action of water, and owing to a peculiar depression in it, near the wall of the fort, I have no hesitancy in

saying that this way is so perfect that the Mound Builders never sought to improve it. The depression was undoubtedly caused by water pouring over it, or upon it, when it first began to cut these furrows in the hills that we see everywhere.

Big Twin once swept along the foot of the bluff, and at the southern extremity of the hill made an angle, and flowed easterly for a short distance. When this was the course of the creek, the stream in the southern ravine was cutting its way deeper and deeper, and seeking to enter Twin at a point farther below. It succeeded in flowing into the creek a little below the bluff, thus leaving this very narrow neck of land with its precipitous sides. I found the entire length of this way, from the narrow gateway in the wall to the point where it reaches the terrace, to be four hundred and thirteen feet. Forty-nine feet from the gateway, a spur leads from the the way to the right. The upper portion of the way is so narrow that only one person can walk upon its crown, although five may go abreast on its rounded surface. As it approaches the river-terrace it gradually becomes broader and steeper. Forest trees of large growth are seen growing upon both of these ways. On the former, near the waste, I saw a red oak directly upon the center or middle of the wall, which was not less than four feet in diameter.

This ancient fortification overlooks the fertile valley lying between the Twin and the Great Miami. Some seven miles distant, on the northeast, is the great mound at Miamisburg, while six miles to the east, and not far from Springboro, is another mound. At Franklin is the remains of a stone dam, discovered in excavating for the hydraulic, in the alluvial deposit, and belonging to the epoch of the Mound Builders.

Taking it all in all, I consider this fortification to be one of the most remarkable of the works of the Mound Builders.

As relics of the fort, I brought away two stone axes, both of green stone. I have never seen any figured similar to one of them. It tapers to an edge in both

directions, has the usual crease for fastening on the handle, and is six inches long, five and one-half wide, and weighs four pounds. The crease in the other is continued only on three sides, the back of the axe being left flat, so that, when lashed to the handle, it could be tightened by wedging. It is five and one-half inches long, three wide, and weighs three pounds.

Among the other fortifications may be mentioned the following: Fort Hill, in Highland County, twelve miles from Hillsboro, is situated on the summit of a hill five hundred feet above Brush Creek. The wall is composed of mingled earth and stone, and is over a mile and one-half in length, varying from six to ten feet in height, with an average base of from thirty-five to forty feet. It is accompanied by a ditch, and encloses an area of forty-eight acres.

On the west bank of the Great Miami, two and one-half miles above Piqua, is a work composed of earth intermixed with large quantities of stone, enclosing an oval-shaped area of eighteen acres.

Three miles below Dayton, on the east side of the Great Miami, on a hill one hundred and sixty feet high, is a fort enclosing twenty-four acres. The gateway on the south is covered upon the interior by a ditch twenty feet wide and seven hundred feet long. On the northern line of the embankment is a small mound, from the top of which a full view of the country for a long distance up and down the river may be obtained.

Other works might be particularly noticed, which are given in the list of the Earth Works of Ohio at the close of the volume. Among the fortifications occurring in other States, the most extensively known are the following: Near Lexington, at the mouth of Flat Run, Bourbon County, and the one on the left bank of Olentangy Creek, four and one-half miles north of Worthington, in Fayette County, Kentucky, and in Franklin County, Tennessee.

Remarks.—The descriptions and examples thus given will serve to form some conception of the magnitude of these structures. It is not to be presumed that the

modern art of constructing works of defense was known to them. Works of wood, used for defense, may have accompanied these walls. Some have supposed that palisades were erected upon them, but during the ages have crumbled away. Indeed, such appears to have been the case from the general feature of these structures. The gateways were undoubtedly barricaded with timbers. They certainly were not left open to the fire and assault of an enemy. It is natural to infer that the stone heaps found at some of the gateways were used to barricade the entrance during an invasion. But these stone heaps do not appear at all the gateways, in fact but at few of them, and hence we are forced to believe that timber was generally employed. It is difficult to tell the original heights of any of the walls composed of clay. During the great lapse of time, which they have undergone, the changes in the weather, the rains, the freezings and thawings have washed them gradually down until we meet with only the remnants. If they were built of sun-dried brick, then they probably ranged from fifteen to thirty feet in height, and possibly more. These works were probably guarded at all times, and the mounds within them used as alarm posts, and the fire appearing upon them was to give warning to the people in the valley that the enemy was near at hand. If I am capable of judging, I would say that some of the forts have been taken by assault. I noticed that this is the case with the one I have been so particular to describe in this chapter. I noticed the gateway at the natural graded way was partially closed; that it was filled almost to the height of the wall; that here we discover mingled clay and limestone, having the appearance of being hastily thrown together. That the work could be assaulted from this point the general features indicate. That it was assaulted I do not doubt. That there were serious invasions, and that great conflicts occurred, the number and formidable appearance of these works amply testify.

CHAPTER III.

SACRED ENCLOSURES.

Character—Different Forms—Newark Works—High Bank Works—Graded Ways—Work Near Piketon—Remarks.

The form and location of a very large number of earthworks render it evident that they were not erected for military purposes. These have been called Sacred Enclosures. In the careful examination of the works of defense it is discovered that they are adapted in every case to the natural features of well chosen hills, and their avenues guarded with consummate skill. On the other hand the Sacred Enclosures are situated on the level river bottoms, and seldom occur upon the table-lands, or where the surface is broken. Some of the reasons for ascribing a portion of the enclosures to a religious or superstitious origin are thus given: The small dimensions of most of the circles; the occurrence of the ditch interior to the embankment; the occurrence of altars within the enclosures, and the fact that many of the enclosures are completely commanded by adjacent heights. The works are generally regular in their structure, and principally found in groups. The circular works are generally small, having nearly a uniform diameter of from two hundred and fifty to three hundred feet, and the larger ones reaching more than a mile in circumference. They are accompanied by a gateway usually facing toward the east. In the vicinity of large works, small circles varying from thirty to fifty feet in diameter, and consisting of a light embankment with no gateway, are numerous. The walls are, for the most part, comparatively slight, ranging from three to seven

feet, though at times imposing and reaching a height of not less than thirty feet. The walls are composed of surface material and clay. Many of these works are accompanied by parallel walls, of slight embankments, sometimes reaching a length of eight hundred feet. The square, circle, octagon, ellipse, and parallel walls are sometimes found in combination.

Newark Works.—The most elaborate and complicated of all the works of the Mound Builders occur at the junction of the South and Raccoon forks of Licking River, near Newark. They are situated upon a plain elevated from thirty to fifty feet above the bottom land bordering on the stream. They consist of an extensive series of square, circular, and polygonal enclosures, with mounds, ditches, and connecting avenues, extending over about four square miles. This wonderful series of works have not continued to remain as they were when first discovered. Some of the minor structures have been nearly obliterated, and others have perhaps undergone considerable change. Fortunately very accurate surveys have been made and minute descriptions given, so that by the aid of the plans something may be known of these gigantic works. In 1836 Col. Charles Whittlesey made a very accurate survey; and since then additions have been made so that it may now be said that we have the works complete. Our engraving is drawn from the plan as given in Wilson's "Pre-Historic Man," which may be said to contain all that has been discovered.

By the aid of the accompanying plan (Fig. 3,) the reader's attention may be called to the most interesting features, although only a general discription will be attempted. Beginning at the most western point we first encounter a true circle twenty-eight hundred and eighty feet in circumference, and six feet in height, with no ditch. On the southwestern part of this wall is a feature never before noticed. It seems to indicate that the builders commenced to carry out parallel lines from this point, but after having reached one hundred feet abandoned the idea and closed the opening by erecting a mound one hundred and seventy feet long and fourteen

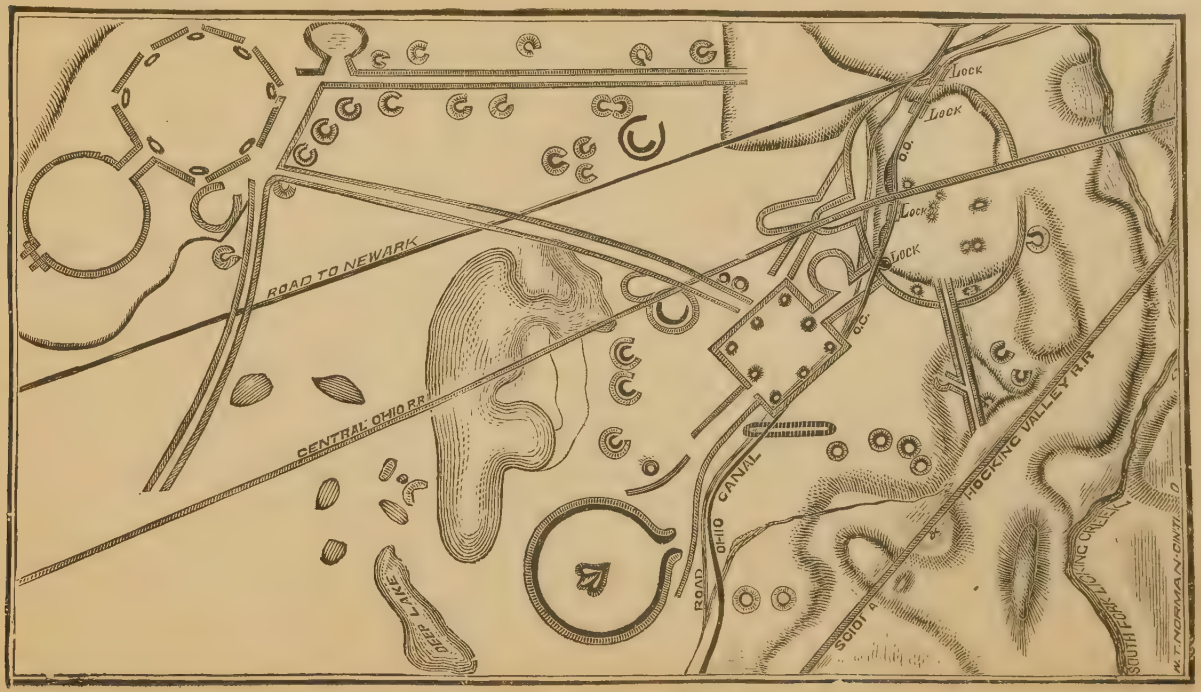


FIG. 3—PLAN OF NEWARK WORKS.

feet high. This mound overlooks the whole series of these works, and has received the name of the "Observatory." At the northeastern part, or directly opposite the Observatory is the gateway leading into an avenue three hundred feet long and sixty broad, the walls of which do not exceed four feet in height. This avenue terminates in one of the eight gateways of an octagon enclosing upwards of fifty acres. The gateways of the octagon are at the angles of the wall, and each covered upon by a mound five feet high by eighty to one hundred feet base, and placed sixty feet interior to the wall.

From the octagon there extend three lines of parallel walls. The line extending toward the south has been traced a distance of about two miles. The others extend in an easterly direction, and are a mile in length. The walls composing these lines are twenty feet apart. The most northern line terminates by being carried down the foot of the terrace,—the bank being inwardly excavated upwards of one hundred and fifty feet, and the earth thus removed appropriated to form an elevated way over the swampy ground immediately at the foot of the terrace.

The middle line of parallel walls terminates in a square, enclosing an area of twenty acres, with seven mounds symmetrically disposed within the walls. On the southwest of this wall is a gateway leading into a wide avenue of dissimilar parts and constructed apparently without relation to each other. Passing along this avenue, to a distance of about nineteen hundred and fifty feet, we come to the gateway of an elliptical work, whose diameters are respectively twelve hundred and fifty and eleven hundred and fifty feet. The embankment is about twelve feet in perpendicular height by fifty base, and has an interior ditch seven feet deep by thirty wide. At the gateway the embankment is sixteen feet high, with a ditch thirteen feet deep, giving an absolute height, from the interior, of twenty-nine feet. The gateway is eighty feet wide between the ditches, and as the ends of the wall curve outward one hundred feet, it is of that length also.

In the center of the enclosure is a remarkable structure in the form of a bird with expanded wings. The length of the body is one hundred and fifty-five feet; width sixty-three feet; height seven feet. Length of each wing one hundred and ten feet; width, in center, forty-five feet; same next the body, forty feet; height five feet. From the tip of one wing to that of the other, in a direct line, two hundred feet. The head points directly towards the gateway of the enclosure. Upon opening this effigy it was found to contain an altar. Immediately in the rear of the effigy and one hundred feet distant is a semi-circular embankment two hundred feet in length, not represented in the engraving.

Passing back to the square, we again have it connected with an elliptical work, larger than the rest of the works, and is situated on the northeast. The dimensions are not given in the surveys in my possession. There are other parallel walls in the plan and not less than twenty small circles of eighty feet diameter, accompanied by the ditch, the gateway in nearly every case opening towards the east. There are eleven circles without the gateways, and five other circles of larger dimensions, three of which are two hundred feet in diameter, and interior to the ditch have still another embankment.

The material for the construction of these walls was taken from the immediate vicinity, the excavated places remaining, and usually called "wells." A trench was cut through the "Observatory," when it was discovered that this part was constructed entirely of clay. From this it has been concluded that originally it was built of sun-dried bricks, but during the lapse of ages, the external or exposed surfaces have crumbled away. It may be that all the larger works of this series together with the heavier walls were either composed of or else faced with sun-dried bricks.

The large pond no longer exists, having been drained in order to reclaim the land. In the circle containing the bird the fair grounds are now located.

No one has ever supposed that these works were

designed for a military purpose. Every feature would disprove it. Fortifications, however, do occur within four or five miles; also a gigantic effigy supposed to represent an alligator, not far from Granville.

High Bank Works.—Five miles below Chillicothe and on the right bank of the Scioto, the enclosures designated "High Bank Works" occur. At this point the river has cut its way up to the third terrace, which in consequence presents a bold bank rising not less than seventy-five feet above the water. This terrace spreads out into a beautiful level plain. The principal works located upon this terrace consist of an octagon and a circle, the former enclosing eighteen and the latter twenty acres. The octagon is not regular, although its sides are equal, and its alternate angles coincident. These two works are connected by a gateway. The wall of the circle is from four to five feet in height, and the walls of the octagon about eleven by fifty feet base. The octagon contains seven gateways, each covered upon by a mound. It appears that originally there was still another, but afterwards closed, the accompanying mound still remaining. Almost contiguous to the octagon are two smaller circles, one two hundred and fifty feet diameter and the other three hundred. A half mile to the south, and connected with these works by lines of embankment, is a small group of works partially destroyed by the river. Besides these, not less than nine circles of fifty feet diameter are also found near the works.

Other Works.—The singular group of works at Hopeton, same county, is similar to the one just described. Other interesting works occur in the vicinity of Chillicothe. In Liberty township, same county, is a singular work consisting of two perfect circles, a square, and one semi-circle, all in combination. The larger circle is seventeen hundred and twenty feet diameter, and the smaller eight hundred, and the square work measures one thousand and eighty feet upon each side. The walls are interrupted at the corners and the middle of each side by gateways thirty feet wide. The gateways in the middle of each side are covered upon by mounds—the

corners left exposed. The walls of the entire work are nowhere more than four feet altitude.

Numerous other works of more or less interest occur in Ross County. Also in Athens, Pike, Washington, Scioto, Franklin, Fairfield, Greene, Montgomery, Butler and Clermont Counties.

Graded Ways.—Accompanying some of the enclosures is another class which has been denominated *Graded Ways* or *Avenues*, the purposes of which are not clear. They sometimes ascend from one terrace to another, and occasionally descend towards the banks of rivers. One occurs at Marietta (referred to on page 45), another at Piqua, another near Richmondale, and the most remarkable one near Piketon, Pike County. An illustration of the latter named is given in Fig. 4.

It consists of a graded ascent from the second to the third terrace, the level of the latter being seventeen feet above the former. The way is one thousand and eighty feet long, by two hundred and fifteen feet at the lower, and two hundred and three feet at the upper extremity. The earth is thrown outward on either hand—the embankments on the outer sides varying from five to eleven feet in height. At the lower extremity of grade the walls upon the interior are twenty-two feet in perpendicular height. Upon the third terrace the eastern line of embankment is extended two thousand five hundred and eighty feet, terminating near a group of mounds, one of which is thirty feet high. Fifteen hundred feet from the grade another wall starts off from the main line at right angles to a distance of two hundred and twelve feet, when it assumes a parallel course to the principal line, and continues for four hundred and twenty feet, and then curves inwardly two hundred and forty feet, and terminates near a group of mounds.

It is impossible to tell the use of this work. On first view it would appear to have been constructed to facilitate the ascent from the second to the third terrace. But the manifest connection of the Graded Way with the mounds unsettles such a conclusion. A probable solu-

FIG. 4.—GRADED WAY, NEAR PIKETON, OHIO.

tion will be pointed out when we come to consider the engineering skill of the lost race.

Remarks.—In giving the foregoing examples of these ancient structures, the aim has simply been to give the reader a fair conception of the magnitude of these wonderful and stupendous works. A detailed list and description should be accompanied by plans, for without the drawings the particulars must of necessity be vague.

The structures coming under the head of Sacred Enclosures are supposed by archæologists to be places devoted for purposes of worship and the homes of the priesthood. The diameters of some of the enclosures are so great that they could not have served as the walls of temples. Within these places, if we are to judge by the manners and customs of the ancient Mexicans and Peruvians, were erected the shrines of their gods, and the altars of this ancient people. Within the larger circles may have been their sacred groves, and the temples made of wood. The smaller circles may have been designed for the priesthood—the residence of the priest—situated in such an enclosure as was most compatible with his position in the priesthood. The parallel walls were possibly intended for protection during the mysterious marches from one enclosure to another. Possibly some of these structures were designed for purposes of sport among the athletic, or else council-houses for purposes of legislation. This idea, however, must necessarily be treated when their manners and customs are reviewed.

If we assign any or all these structures to religious purposes, there is nothing singular in the fact that these great walls were constructed, for it has been the custom among various heathen nations to protect their sacred places by walls, in order to preserve them from desecration by animals, or intrusion by the irreverent. Even among the ancient Hebrews sacred places were sometimes enclosed to prevent their profanation. "And Moses said unto the Lord, the people cannot come up to Mount Sinai: for thou chargedst us, saying, 'set bounds about the Mount, and sanctify it,'" (Ex. xix. 23.) We

are also informed that the Tabernacle had its outer enclosure. It was supported by pillars of brass, seven and one-half feet in height, the whole being enclosed by canvas screens, and only broken on the eastern side by the entrance. A description of the Tabernacle is given in Exodus, xxvi., xxvii., and xxxvii. chapters. As Solomon's Temple was the counterpart of the Tabernacle, except double it in dimensions, we have here also a protection.

It is true but few of these sacred enclosures contain temple mounds, but it does not follow that because elevated places were made for the temples, consequently all temples must be situated on mounds especially erected for that purpose. Undoubtedly there were many temples which were built upon the level surface of the ground. The sacred enclosures occur in various places where there are no temple mounds in that vicinity or region. These places are well marked as having been densely populated. The people were not without their priesthood and their place of worship. Suitable structures were undoubtedly erected for these people. Where the temple mounds occur were probably the chief places of worship, the same as the temple at Jerusalem was the chief place for the Jewish people.

The altars found within the enclosures, and presenting positive evidence of having been used for sacrifice, and thus proving, at least, that some were sacred, will be spoken of in their proper place.

CHAPTER IV.

MOUNDS.

Described — Temple — Cahokia — Marietta — Southern States — Seltzertown — Georgia Temple — Other Localities — Sacrificial — Mound City — Sepulchral — Grave Creek — Chillicothe — Stone Mound Near Newark — Methods of Burial — Symbolical — Great Serpent — Alligator — Big Elephant — Anomalous — Observation — Miamisburg — Stone Heaps.

The mounds proper form an interesting feature of these ancient remains; they have been carefully studied and are undoubtedly of as much importance to the archæologist as the enclosures. Among the people generally, who live within the vicinity of the earthworks, the mounds are better known than the enclosures. On inquiring for the latter great difficulty is often experienced in finding it, while almost any one could readily point out the mound.

As has been already noticed, the mounds in Ohio are very numerous. They principally occur near large streams, and are found in great numbers along the two Miamis, Scioto, Kanawha, White, Wabash, Kentucky, Cumberland, Tennessee, and other tributaries of the Ohio and Mississippi Rivers. They are of all dimensions, varying from a few feet in height and a few yards in diameter to ninety feet in height and covering several acres at the base. The usual dimensions range from six to thirty feet in perpendicular height by forty to one hundred feet in diameter at the base. Some of the mounds are so great that it would require the labor of a thousand men, for months, with their best or latest improved implements, to erect. They are mostly

composed of earth, though stone mounds are met with not infrequently. Sometimes they are composed entirely of clay, while the soil all around them, and for some distance, is gravel or loam. The mounds occur mostly within or near enclosures; sometimes in groups, and often detached and isolated. They are found in considerable numbers on the tops of hills, and are frequently met with on the most elevated and commanding positions. From the shape, size, and especially the contents found within some of the mounds, it is shown that they were erected for different purposes, and many of them indicate years of usage. In treating of these monuments, it will be necessary to speak of them under the respective heads into which they have been divided.

Temple Mounds.—This class of mounds is characterized by their great regularity of form, large dimensions, and are chiefly truncated pyramids, having graded avenues or spiral pathways to their summits. In form they are round, square, oblong, oval, or octangular, all having the appearance of being left in an unfinished condition. They are generally high, yet examples are known in which they are but a few feet in elevation, although covering several acres of ground. They are usually surrounded by embankments. They are not numerous in Ohio, occurring only at Marietta, Newark, Portsmouth, and in the vicinity of Chillicothe. The farther south we go the more numerous and the greater in magnitude they become—being very abundant in Tennessee and Mississippi. The summits of these mounds were probably crowned with temples constructed of wood, but no traces remain to tell of their existence.

Great Mound at Cahokia.—The monarch of all the mounds was that at Cahokia, Illinois. This mound was situated in a group containing not less than sixty structures. Its form was that of a parallelogram with sides at the base, respectively seven hundred and five hundred feet in length, and reared its level summit to a height of ninety feet. The entire area occupied comprised six acres, and its solid contents have been roughly estimated at twenty millions of cubic feet. On the

southwest there was a broad terrace one hundred and sixty by three hundred feet, which was reached by a graded ascent. The summit, or highest part of the mound, was truncated, affording a platform two hundred by four hundred and fifty feet. From this platform rose a small conical mound about ten feet high, which, on being removed, was found to contain human bones and various implements of stone and pottery, undoubtedly belonging to a more recent period. Upon the summit was probably erected a capacious temple, where were celebrated their religious ceremonies, and where were kindled their sacred fires, while the multitudes gathered below to look on and adore. This mound is no more, having been swept away to give room for modern improvement.

Temples at Marietta.—On the site of the city of Marietta was once a remarkable group of works, a portion of which still remains. It has been frequently described, and several surveys of it have been made. A very careful description and an accurate plan of it was made by Col. Charles Whittlesey in 1837. An illustration of these works, reduced from an oil painting, which was made before the works had been injured, is given in the accompanying sketch. The view is from the north looking south, the Muskingum River is on the right and the Ohio in the distance. The works occupy a high, sandy plain from eighty to one hundred feet above the bed of the river, and from forty to sixty feet above the bottom lands of the Muskingum. The earth works consist of two irregular squares (the one in the foreground having an area of fifty acres and the other twenty-seven) inclosing various mounds and connected with a graded way on the right and a large mound in the distance. On the opposite side of the Muskingum, situated upon bold, precipitous bluffs, are quite a number of stone mounds, which command a very extensive view. The walls of the enclosures, when first discovered, were about six feet high by about twenty-five feet base. The smaller square contains ten gateways, each of which is covered by small mounds placed either on a line with the embankment or

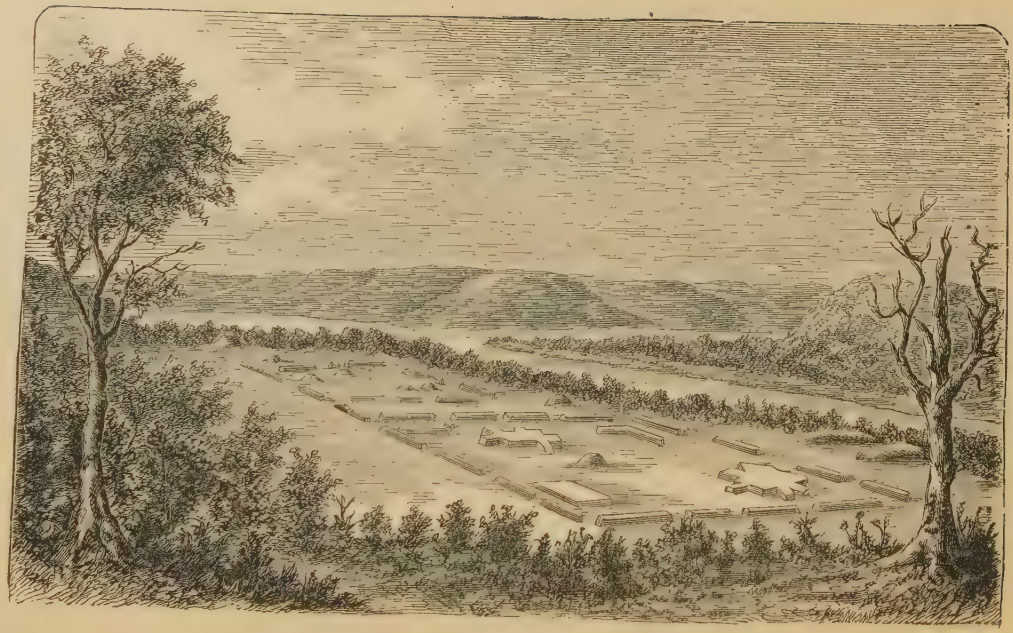


FIG. 5.—ANCIENT WORKS AT MARIETTA, OHIO.

else immediately within the enclosure. The large mound in the distance and on the left is thirty feet high, surrounded by an embankment. It is now enclosed in the public cemetery and well guarded from encroachment.

The larger work contains sixteen gateways, unaccompanied by the protecting mounds. The gateway at the southern angle is covered by an interior crescent wall and another may be said to be protected by the graded way. Within this enclosure are four temple mounds, three of which have graded passages or avenues of ascent to their tops. The principal one is represented in the right hand corner in the square in the foreground. It is ten feet high, one hundred and eighty long and thirty-two wide. It has four graded ascents, midway upon each side, each one being sixty feet long and twenty-five feet wide. The next in size is the one in the irregular-looking mound near the center of the picture. It is eight feet high, one hundred and fifty long and twenty wide. It has three graded ways to its top. On the south side, instead of the graded passage, there is a recess or hollow way fifty feet long by twenty wide. A few feet from the northern passage is a small, conical mound. In the corner and to the left of the one described is another, but not distinctly marked. Still another occurs near the second one described (not clearly defined in the engraving) and close to the eastern angle of the enclosure, having an altitude of six feet, and one hundred and twenty long by fifty broad.

The graded way or parallel lines of embankment, on the right of the enclosure and leading to the Muskingum, begin at a gateway which is one hundred and fifty feet wide, and continues a distance of six hundred and eighty feet. This way has been excavated, the embankments being one hundred and fifty feet apart and from eight to ten feet high, but at the base of the grade the walls from the interior are twenty feet high. The center of the passage way is slightly raised and rounded.

At various points around these works are excavations supposed to have been made for the purpose of obtaining clay for the construction of pottery or other utensils.

Mounds of the Southern States.—The temple mounds of the Southern States are mostly of the pyramidal form, and often occur entirely separate from enclosures of any sort. Some of the mounds are circular; most have graded ascents, and a few have a low wall enclosing a level area at their tops. Mounds of this description are from twelve to fifteen feet high, with proportionate base.

Mound at Seltzertown.—The great mound at Seltzertown, Mississippi, is of very singular construction, and of such dimensions as almost to preclude the idea of its artificial origin. It is a truncated pyramid, forty feet high, placed very nearly in reference to the cardinal points, its greater length, from east to west, being six hundred feet, and four hundred feet broad, covering about six acres of ground. It is surrounded by a ditch, at its base averaging ten feet in depth. The summit of the mound is accessible by a graded way. From this platform, embracing an area of four acres, rise three conical mounds, one near each end and one in the center. The mound at the west is truncated, forty feet high, with a level summit thirty feet in diameter. The mound at the opposite end is somewhat less in size, and also truncated. Eight other mounds, measuring from eight to ten feet in height, are regularly placed at various points.

In exploring the mound it was found to contain numerous skeletons and specimens of pottery. The north side of the structure was found to be supported by a wall of sun-dried bricks, two feet thick, filled with grass, rushes and leaves. Dr. Dickeson, who explored the mound, says he found angular tumuli, the corners of which were quite perfect, formed of large bricks, bearing the impression of the human hands. On sinking a shaft to the depth of forty-two feet into the mound they failed to reach the original soil.

*Mound in Georgia.**—It would appear that the remarkable mound in Early County, Georgia, might be classed among the temple mounds. It is three hundred

*Smithsonian Report, 1872.

and fifty feet long, two hundred and fourteen feet wide, and ninety-five high. An extensive embankment surrounds the mound. Near the mound extends, in a straight line, a ditch twelve hundred feet long.

Other Mounds.—Besides the places already alluded to, remarkable mounds of this class also occur in Kentucky, near Cadiz, Trigg County, near Mt. Sterling, and in Adair, Hickman, McCracken, Whitely, and Christian Counties; in Tennessee, near Claiborne, Clark County, Paris, Henry County, near Palmyra and near Knoxville; in Bradford County, several extensive mounds exist, one of which covers thirty-three acres. Mounds of large size are found in Missouri.

Sacrificial Mounds.—This class of mounds has been very carefully explored, and possesses several distinguishing features. They invariably occur either within or else in the immediate vicinity of enclosures, being regularly constructed in uniform layers of gravel, earth and sand, disposed alternately in strata conformable to the shape of the mound; and their covering a symmetrical altar of burnt clay or stone, on which are deposited numerous relics, in all instances exhibiting traces of their having been subjected to the action of fire.

The "altar" is a basin or table made of burnt clay, although a few of stone have been discovered. They are carefully formed, but vary much both in shape and size, some being round, others elliptical and others squares, or parallelograms, and in size range from two to fifty feet by twelve or fifteen. Their usual dimensions, however, are from five to eight feet. They are modeled from fine clay and usually rest upon the original surface. In a few instances they have been found with a layer or small elevation of sand under them. Their height seldom exceeds a foot or twenty inches above the adjacent level. Upon the altars have been found calcined human bones, elaborate carvings in stone, ornaments cut in mica, copper instruments, discs, and tubes, pearl and shell beads, pottery, spear-heads, etc.

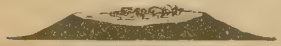


FIG. 6.—CROSS SECTION OF ALTAR.

Mound City.—On the left bank of the Scioto River, three miles north of Chillicothe, is an enclosure containing twenty-six mounds, and embracing an area of thirteen acres known as "Mound City." All of the mounds have been opened, and the principal ones found to contain altars.

Into one of these mounds, which is ninety feet in diameter at the base, by seven and one-half feet high, a shaft six feet square was sunk from the apex with the following results, as given in the annexed engraving with its explanations:

FIG. 7.—SECTION OF AN ALTAR MOUND.

a. Layer of gravel and pebbles one foot thick.
b. Layer of earth three feet thick.
c. A thin stratum of sand.
d. Layer of earth two feet thick.
e. Stratum of sand.
f. The altar.

The altar within this mound was in the form of a parallelogram of the utmost regularity, measuring at its base ten feet by eight, and at its top six feet by four, its height being eighteen inches and the dip of its basin nine inches. Within the cavity was a deposit of ashes three inches thick, intermingled with which were fragments of pottery and a few shell and pearl beads. Three feet below the apex of the mound were found two well preserved skeletons, which, from the disturbance of the regular layers, belong to an intrusive age, and were those of Indians.

Within the basin of the altar of another sacrificial

mound from the same locality were found fine, dry ashes, intermixed with which were fragments of pottery of excellent finish, and a few convex copper discs. Above the deposit of ashes, and covering the entire basin, was a layer of opaque mica, in sheets, overlapping each other. Upon this, and immediately over the center of the basin, was heaped a quantity of burned human bones.

The contents of these mounds vary very much. Upon some altars are found only pipes; upon others a single mass of galena, pottery, or spear-heads. In some of them, containing human remains, carbonized cloth occurs. The mounds are sometimes found to contain a series of altars, superimposed the one above the other, and each indicating usage.

From the human bones which have been found upon these altars, it is inferred that the Mound Builders offered up human sacrifices.

The conclusion that the mounds of this class were devoted to superstitious rites does not appear to be satisfactory. They rather appear to indicate that cremation was practised among this people. To establish the sacrificial origin of these mounds, it is inferred from the fact that instead of finding a variety of implements and trinkets, articles of only one class frequently occur. This inference may be well, or may not be well grounded; but the fact must be patent that owing to the skill displayed in carving, it is plausible to assume that a division of labor was established. Cremation has been practised among many nations, and articles belonging to the deceased were burned with the body, and over the remains a mound was raised. Then there is an almost insuperable difficulty to overcome in the sacrificial origin, and that is the altars are found heaped over with sand, gravel and soil. Why they should cover their altars, if so they be, with so much earth must remain inexplicable. Some of the altars do not contain human bones. It may be owing either to the possibility of the fires having been long continued, thus destroying every trace of human remains, or else the bones and ashes of the dead were removed to another spot for burial.

Sepulchral Mounds.—Mounds of Sepulchre are very numerous, and usually have the form of a simple cone, but sometimes are elliptical or pear-shaped. They vary from six feet to eighty in height, but average from fifteen to twenty-five feet in altitude. They are found without the walls of enclosures, and removed to a distance more or less remote. Many are isolated, and others occur in groups, sometimes connected at their bases. When they are found immediately connected, one of the group will be two or three times larger in dimensions than any of the others, the smaller ones being arranged around its base, thus evidencing an intimate relation between them.

These mounds invariably cover a skeleton—occasionally more than one—which is found near the original surface of the soil. Skeletons have been found in these mounds at various depths, and not unfrequently in great numbers, but belonging to a more recent time, and generally of the Indian type. The skeleton of the Mound Builder is easily distinguished from these, on account of its position in the mound. The body was enveloped in bark, coarse matting, or else coarse cloth, and placed upon thin slabs of wood, or other material which formed the bottom of the tomb. Over it was sometimes built a vault of timber, and at other times was enclosed in long and broad flags of stone. Occasionally the skeleton has been found with stones heaped carelessly over it, and in other instances the stones have been heaped upon the timbers covering the sepulchral chambers.

The skeleton is nearly always found disposed at length, with the arms carefully adjusted at the sides. Dr. Foster in his "Pre-Historic Races of America" has misread Squier and Davis on this point, for he says, "Sometimes it (the skeleton) was placed in a sitting position, again it was extended, and still again it was compressed within contracted limits" (page 188.) This is what Squier and Davis say: "None have been discovered in a sitting posture, except among the recent deposits; and even among these no uniformity exists: some are extended at

length, others lie upon their sides bent nearly double, others still in a sitting posture, and in a few cases it seems that the bones, after the decomposition of the flesh, had been rudely huddled together in a narrow grave."—("Ancient Monuments," page 172).

With the skeleton have been found personal ornaments, such as bracelets, perforated plates of copper, and beads of bone, ivory, shell, or metal. Few weapons, such as spear or arrow-points, are found; stone implements are common. Plates of mica are frequently met with, and sometimes of such size as to almost completely cover the skeleton. The plates are often cut into regular figures, discs, ovals, etc. Vases of pottery are occasionally found.

Grave Creek Mound.—It will not be necessary to give the structure and contents of several of the mounds of this class in order to obtain a knowledge of their general

FIG 8.—GREAT MOUND AT GRAVE CREEK.*

character. It will suffice to speak of but two earth mounds—the one at Grave Creek, and the other not far from Chillicothe, and one stone mound—the one near Newark. The Grave Creek Mound, situated twelve miles below Wheeling, in West Virginia, is seventy feet in height by nearly one thousand in circumference at its base. It was excavated in 1838. In it were found two

*Reduced from "Ancient Monuments."

sepulchral chambers, one at the base, and the other thirty feet above. These vaults had been constructed of timber and covered with stones, which had sunk when the wood decayed, thus giving the summit of the mound a dish-shaped form. The lower chamber contained two skeletons, one of which was thought to be that of a female; the upper chamber contained but one skeleton, and that in an advanced stage of decay. With these remains were found between three thousand and four thousand shell beads, a number of ornaments of mica, several bracelets of copper, and various articles carved in stone. The small flat stone, inscribed with small antique characters, said to have been found in this mound, will be spoken of in its proper place.

From the magnitude of the mound, the almost incredible amount of ornaments, etc., the vault and other peculiarities, it is believed that the principal occupant was a royal personage.

It may be as well to state that, in the construction of this mound, the builders availed themselves of a small natural elevation, above which the tumulus was raised. The lower vault was sunk in this elevation, and was (the vault) in the exact form of a parallelogram.

Mound Near Chillicothe.—On the third river-terrace, six miles below Chillicothe, a mound twenty-two feet high by ninety feet base was excavated. It was composed of a sandy loam, though much compacted and differing slightly in color towards the center. A layer of charcoal, ten feet square and from two to six inches in thickness, occurred ten feet below the surface,—the shaft having been sunk on the west side. The coal was coarse and clear, the trunks and branches perfectly retaining their form, though entirely carbonized, thus proving that the fire had been suddenly covered up. The earth immediately above and beneath was burned to a reddish color. Below the layer of charcoal, the earth was more compact and difficult of excavation. At the depth of twenty-two feet, or on a level with the original surface, was a rude framework of timber, but reduced to an impalpable powder, the cast of which was still

retained. This framework was nine feet long, seven wide, and twenty inches high. Within this rude coffin was found a human skeleton, but in such an advanced stage of decay that it crumbled to powder on being touched. Around the neck of the skeleton was found a triple row of beads, composed of several hundred marine shells, also the tusks of some animal. Several still retained their polish, and bore the marks of having been turned in some machine.

Stone Mound Near Newark.—Perhaps the largest and finest stone mound in Ohio was that which stood about eight miles south of Newark, and one mile east of the reservoir on the Licking Summit of the Ohio canal. It was composed of stones found on the adjacent grounds, laid up, without cement, to the height of about fifty feet, with a circular base of one hundred and eighty-two feet diameter. It was surrounded by a low embankment of an oval form, accompanied by a ditch, and having a gateway at the east end. When the reservoir, which is seven miles long, was made, in order to protect the east bank, so that it might be used for navigation, the stones from this mound were removed for that purpose. During the years 1831-32 not less than fifty teams were employed in hauling them, carrying away from ten thousand to fifteen thousand wagon loads. Near the circumference of the base of the mound were discovered fifteen or sixteen small earth mounds, and a similar one in the center. These small mounds were not examined until 1850, when two of them were opened by some of the neighboring farmers. In one were found human bones with some fluviatile shells, and in the other, two feet below a layer of hard, white fire clay, they came upon a trough, covered by small logs, and in it was found a human skeleton, around which appeared the impression of a coarse cloth. With the skeleton were found fifteen copper rings and a breastplate or badge. The wood of the trough was in a good state of preservation, the clay over it being impervious to both air and water. The central mound was afterwards opened and found to

contain a great many human bones, but no other relics of any note. All of these mounds, so far as they have been explored, contain earth from a distance—the fire clay having been brought from Flint Ridge, six or eight miles distant.

Other Methods of Burial.—Urn burial appears to have been practised to some extent in the Southern States, but not in the valley of the Ohio. In the mounds of the Waterce River, near Camden, South Carolina, have been discovered ranges of vases, one above the other, filled with human remains. Where unburnt, the skeletons have been packed in the vase after the flesh had decomposed. Entire cemeteries have been found where urn burial alone was practised. One of these occurs in St. Catherine's Island, on the coast of Georgia.

It is possible that the caves were resorted to as places of interment. Human remains in caves have been found in Kentucky, Indiana, Tennessee, and in other States. As these have not been clearly identified with the Mound Builders, it will not be necessary to particularize.

It is not to be supposed that the people of Ohio erected barrows over the remains of all their dead. They were probably erected only over the bodies of celebrated persons—chieftains, rulers, and priests. But the graves of the mass of the people, who thronged our valleys, and who toiled to erect these stupendous monuments, are not thus marked. What was done with their remains we know not. Undoubtedly many were cremated on the so-called sacrificial altars. Others may have been buried in graveyards, and their remains long since have crumbled into dust. In places they may still remain where the location and earth are adapted to their preservation. We hear of extensive cemeteries in Tennessee and Missouri which may have been the grand depositories of the dead of this ancient people.

Symbolical Mounds.—The mounds of this class consist of gigantic bass-reliefs formed on the surface of the ground, and representing beasts, birds, reptiles, men and inanimate objects. They principally occur in the lower

counties of Wisconsin, and are found from Prairie du Chien, on the Mississippi, by the way of the Wisconsin and Rock Rivers, eastward towards Fond du Lac on Lake Winnebago, and Milwaukee and Lake Michigan. This scope of country is about one hundred and fifty miles in length and fifty wide. Here they occur by the thousands representing man, the lizard, turtle, elk, buffalo, bear, fox, otter, raccoon, frog, bird, fish, cross, crescent, angle, straight-line, war-club, tobacco-pipe, and other familiar implements and weapons. These works are seldom isolated, but generally occur in groups or ranges, and sometimes placed with apparent design in respect to each other.

The Great Serpent.—The most noted of all this class of remains is the Great Serpent, located on entry 1010 Brattain Township, Adams County, Ohio. It occupies the entire summit of a crescent tongue of land, rising about one hundred feet above Brush Creek, which washes its base. We have here a series of effigy works, consisting of a frog, an egg, and a serpent. The extreme point of the spur is perpendicular, rising forty feet. The face of the rock on the summit is denuded. Thirty feet from the point of rock the head of the frog begins. This effigy, from its nose to the joint formed by the joining of the hind legs, is fifty-five feet. The head is down, the fore legs extended, the hind legs pointing back as though it was in the act of leaping. Partially between the legs is an oval mass of earth one hundred and thirteen feet long by fifty feet broad. In the center is a low mound fifteen feet in diameter. The opposite end of the egg extends into the distended jaws of the serpent. The serpent's head is seventy feet long and the neck seventy five feet, and the entire length eleven hundred and sixteen feet. The serpent conforms itself to the shape of the hill, its body winding back, forming seven graceful curves, and terminating on the main land in a triple coil. The middle of the serpent is about fifteen feet lower than the head, and about twenty lower than the tail coil. On

either side of the jaws extend two triangular elevations, as though intended for wings. Both the egg and the serpent's head are hollow. The structure

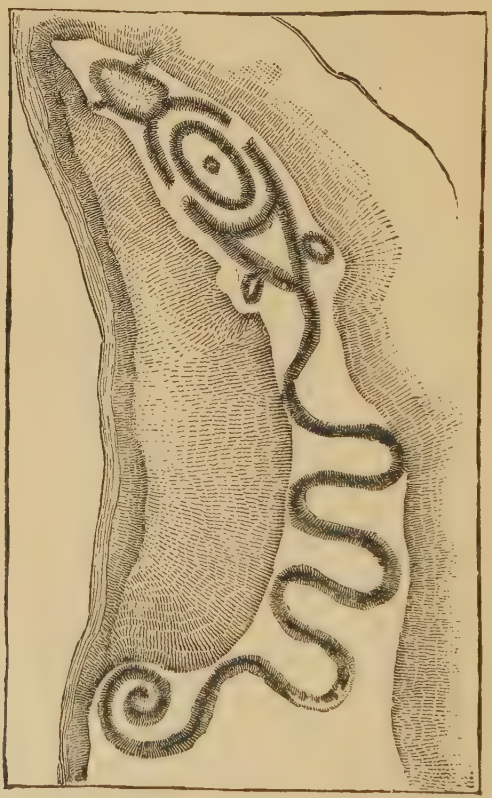


FIG. 9.—GREAT SERPENT, ADAMS COUNTY, OHIO.

contains more or less stone which has been revealed by the plow. The whole figure represents a serpent uncoiling itself on the main land, and gliding towards a frog sitting upon the point of the spur, and, just

as it is in the act of seizing it, the frog leaps, ejecting an egg into the serpent's mouth.

Shall we infer that here is a representation of phallic worship—the frog representing the creative, the egg the productive, and the serpent the destructive powers of nature?

Alligator Mound.—This effigy occurs one mile below the town of Granville, in Licking County, Ohio, being situated upon the summit of a spur of land two hundred feet high, which projects into the valley of Raccoon Creek. Its extreme length is two hundred and fifty feet, average height four feet; the head, shoulders and rump are elevated in parts to a height of six feet; the breadth of the body is forty feet, and the length of the legs or paws, each thirty-six feet, the ends being broader than the links, as if the spread of the toes were originally indicated. Upon the inner side of the effigy is a raised space covered with stones which have been exposed to the action of fire, denominated an altar; and from this, leading to the top, is a graded way ten feet in breadth. The superstructure is of fine clay, which must have been brought from a distance, as no signs of excavation are apparent in the vicinity.

It may be that these two effigies had their origin in the superstitions of their makers. Their positions and all the circumstances attending them would lead to the conclusion that they were high places for sacrifices, where the ancient people gathered on stated occasions to celebrate the rites of their unknown worship.

Big Elephant Mound.—The effigy known as "Big Elephant Mound" occurs in Grant County, Wisconsin, and is described as being situated on the high sandy bottom-lands of the Mississippi, on the east side, about eight miles below the mouth of the Wisconsin River. There are on each side of the mound, some fifteen to twenty rods distant, sandy, grassy ridges, some fifteen feet higher than the land about the mound; the mound is, therefore, in a shallow valley, sloping gently to the Mississippi River, and only about eight feet above high water. Its total length is one

hundred and thirty-five feet; from hind feet to back, sixty feet; from fore feet to back, sixty-six feet; width across fore legs, twenty-one feet; across hind legs, twenty-four feet; from end of proboscis or snout to neck or throat, thirty-one feet; space between fore

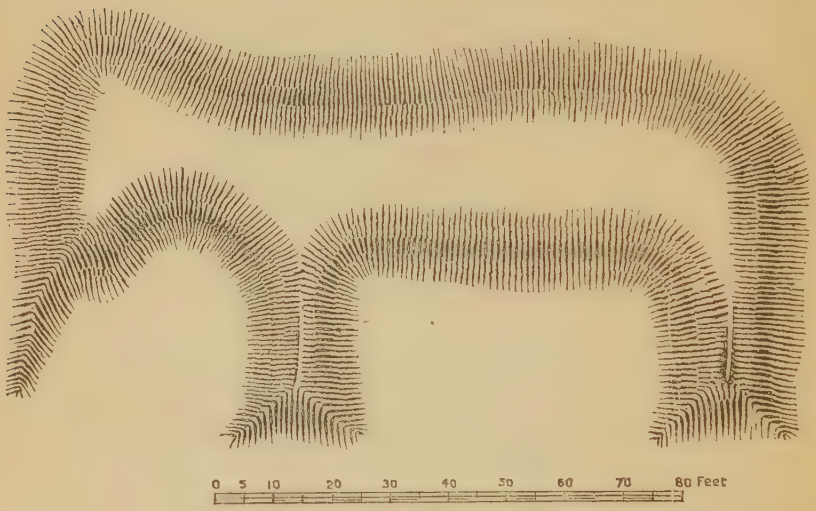


FIG. 10.—BIG ELEPHANT MOUND.

and hind legs, fifty-one feet; from end of proboscis to fore legs, thirty-nine feet; across the body, thirty-six feet; general height of body above surrounding ground, five feet. The head is large, and the proportions of the whole so symmetrical that the mound well deserves the name of the "Big Elephant Mound."*

Anomalous Mounds.—Besides the mounds already discussed there are others which admit of no classification. Some have features in common with all classes, and seem to have been used for a double purpose, while others are entirely inexplicable. In some of these mounds have been found a sepulchre and an altar, both on the same level. Under this general class we may

*Smithsonian Report, 1872.

include also mounds of observation which were undoubtedly used for signal or alarm posts, always situated upon prominent and elevated positions. They have been called "observatories," "alarm posts," "signal stations," "watch-towers," and "out-looks," which were undoubtedly used for signal or alarm posts and occupying some eminence. A range of these mounds extends on the eastern border of the Scioto Valley, between Chillicothe and Columbus, and are so placed in respect to each other, that if the country were cleared of forests, signals of fire might be transmitted along the whole line in a few minutes. Opposite Chillicothe is a hill nearly six hundred feet in height, the loftiest in that entire region, upon which is placed one of these mounds. When the autumn leaves have fallen a fire built upon it would be distinctly seen for twenty miles up and the same distance down the valley; at the Circleville works, twenty miles distant, and for a long way up the valleys of the two Paint Creeks. Similar mounds occur at intervals along the Ohio, Scioto, two Miamis, Wabash, and Illinois Rivers, also on the Upper Mississippi. On the hills overlooking the works at Portsmouth and Marietta mounds of stone are situated.

Great Mound at Miamisburg, Ohio.—This mound (see Frontispiece) has been assigned to the class called Mounds of Observation. It is situated on a high hill just east of the Great Miami, and has a commanding view of the broad valley of the river. It overlooks the fort on Big Twin, and the incomplete works at Alexandersville, as well as others still farther up the river. A beacon light on this mound would be seen from the high mound in Butler County, near Elk Creek, and from that communication could be made to all the enclosures of that county; it could be seen from the mound near Springboro, and thence across the country to Fort Ancient. This mound is sixty-eight feet in perpendicular height, and eight hundred and fifty-two in circumference at its base, and contains three hundred and eleven thousand, three hundred and fifty-three cubic feet.

All the hill-mounds were not erected for places of ob-

servation. In some localities the hill-mounds are quite numerous, and from examination are known to have been sepulchral mounds. It is possible that many of the "observatories" or "alarm posts" were originally burial mounds, but afterwards enlarged and used as signal stations. Upon these mounds this ancient people maintained large fires, which they kept burning for long periods, or else frequently renewed them.

Stone Heaps.— Rude heaps of stone are not uncommon. They probably belong to a later age and were erected by the Indians. The stone mounds of the Mound Builders are very different structures, and should not be confounded with the rude accumulations.

Cahokia Mound.—The statement that this mound had been removed was made on the authority of Dr. Foster, in his "Pre-Historic Races," page 107. I have learned since these pages have been electrotyped that the Cahokia mound has not been removed. It is to be hoped that this monument will be suffered to remain.

CHAPTER V.

WORKS OF ART.

Contents of the Mounds — Spear-heads — Flint — Arrow-heads — Rimmers — Knives — Axes — Hatchets — Hammer-stones — Chisels — Pestles — Mortars — Pottery — Pipes — Sculpture — Gorgets — Tubes — Hoes — Discoidal Implements — Metals — Articles of Bone — Clothing.

It has already been stated that the Mound Builders deposited various articles of use and ornament with the dead. Hence, we find that the mounds are the principal depositories of ancient art. The same mounds have been used in later times for places of burial, and also for depositing the implements and ornaments of the more recent dead. The difference between the ancient and more recent deposits is easily told. In the latter the stratification is broken up, while in the former it still preserves its original integrity.

The implements and ornaments found in the mounds are made out of minerals, clay, bones, fossils and shells. The first implements ever used by man—unless the club be excepted—and the ones chiefly employed by all savage nations, are made from stone. Among the Mound Builders, who are not numbered along with the polished or enlightened nations, we must expect to find many and various implements of stone, having a great variety of forms, and used for different purposes.

Spear-Heads.—Flint* is a very important mineral to the savage and semi-civilized. It enters very largely

*The real flint does not occur in the United States. Under this general term, in this country, is embraced horn-stone, jasper, chalcedony, etc.

into their weapons of warfare and the chase. Ninety-five per cent. of the arrow- and spear-heads found in Ohio are composed of the different varieties of chert. Many points of obsidian have been found, which, judging from the fragments, must have been of large dimensions. The ready fracture of this mineral, upon exposure to strong heat, has been unfavorable to the recovery of entire articles composed of it. Chalcedony also occurs, but not in abundance. The weapons or implements made of flint are found in great abundance. They are of every variety of form, and for the most part wrought with care.

The spear-heads have been divided into three classes, viz., *lance-heads*, *fishing-* and *hunting-spears*. The first is formed without the notched or stemmed base. They are sometimes wrought with care, and in length range from two to fourteen inches, the width varying according to the design of the workman. Some of them taper at both ends, and are supposed to have been used for battle axes, having been fastened to the handle at the middle. The second class, or hunting-spears, has either a notched or stemmed base. They are found scattered over the whole country, and their form indicates their use. The third class is characterized by a certain long tapering form. While every archæological collection contains them, yet they may be said to be comparatively rare. They may be picked up along the shores of creeks and rivers, being doubtless used in spearing fish. It is a singular fact but very few spear-heads, or any weapons of stone, are met with in the sepulchral mounds. They occur, however, in many of the so-called altar or sacrificial mounds. From one altar was taken several bushels of finely-worked spear-heads. In another mound were found six hundred spear-heads, or discs of hornstone.

Arrow-Heads.—Weapons of this class are less abundant than the spear-heads. They are found throughout the West, especially in the valleys where the mounds occur, and are met with in the mounds themselves. They possess a great diversity of form, and any attempt to classify them is useless, for whatever series of charac-

teristics may be adopted there will be presented so many exceptions as to make void the rule. Their form has given rise to different names, and the following eight varieties have received their appropriate appellations:

a *b* *c* *d* *e*

FIG. 11 – DIFFERENT FORMS OF ARROW-HEADS.

a. Those which are *triangular*.
b. Those which are *indented* at the base.
c. Those which are *stemmed*.
d. Those which are *barbed*.
e. Those which are *leaf-shaped*.

f *g* *h*

FIG. 12.—DIFFERENT FORMS OF ARROW-HEADS.

f. The *lozenge-shaped*.
g. The *dirk-shaped*.
h. The *beveled*.

Many of these are delicately wrought from the richest material in the possession of their makers, such as trans-

parent quartz, and obsidian. Every variety of quartz found in this country, embracing every shade of color and degree of transparency, from the dull blue of the ordinary hornstone to the brilliant, pearly light of the chalcedonic varieties, has been used. They rarely ever exceed two inches in length.

Many of the flint implements classed as spear-heads, or arrow-heads, were doubtless used for daggers, fleshers and knives. For these purposes they could easily be used by first fastening them upon suitable sticks or handles.

Rimmers.—Many stone implements are found perforated, showing that there must have been some instrument used for that purpose. There have been found flint implements having a long shaft and ending in a point which are supposed to have been used in boring or drilling holes. Some are very beautiful in execution, exhibiting artistic design.

Knives.—Knives and other cutting instruments made of flint and obsidian have been taken from the mounds. The edges of some of these are as sharp as razors. Their pattern varies; some are semi-circular in form, and may be grasped in the middle. A flint knife* is given in the accompanying engraving, reduced to one-half the

FIG. 13.—FLINT KNIFE.

diameter. It is from the surface found in Huron County, Ohio. Another kind called chisels is formed of brown hematite, some of which have a very sharp, smooth edge. In the shaping of these, great labor has been required. They have a sub-metallic lustre, and

*In the Author's Cabinet.

their specific gravity is nearly that of iron.

Axes.—Among the most efficient utensils was the axe. They are not abundant in the mounds, but occur in great numbers in the valleys. They have been fashioned with great skill out of rare and beautiful materials, the granitic series of minerals predominating. They are found with and without grooves for the adjustment of handles. Those designed to be wielded with both hands

FIG. 14.—TYPICAL STONE AXE.
(One-third Nature)

have an average weight of from six to ten pounds. They vary in weight from one pound to sixteen. Fig. 14 is a representative axe, which may be found in the vicinity of the mounds, along Indian trails, or around their villages.

Figure 15* is a very beautiful adze-shaped axe of compact green stone found near Florence, Preble County, Ohio. It is handsomely finished, and remains in a perfect condition. The wood-engraver has not brought it out as he should have done. It is reduced to one-half its diameter.

FIG 15.—ADZE-SHAPED AXE.

The smaller varieties, called hatchets, were used in war, as well as for domestic purposes. They weigh from one to two pounds; are destitute of grooves, and are of all

*In the Author's Cabinet.

sizes, from two inches to a foot in length. They vary greatly in design. Some have holes for the reception of handles. These implements, for the most part, are polished, and some have been ground and polished with elaborate care.

Hammer-stones or mauls are also found, made of the same material as the axes. They were intended for domestic purposes, and, if used in war, must have been formidable weapons. In form they vary, some having the groove around the middle, and well finished, others oval, irregular or flat.

FIG. 16.—GROOVED HAMMER. (One-half Nature.)

To all these implements a handle or helve was fastened, by thongs of rawhide. The handle was either a split withe or forked stick, passing along the groove. The grooved axe is not generally well balanced, and was probably as much used for breaking as for cutting wood. The ruder hammer-stones may have been used as net-sinkers.

Chisels.—There are many implements found resembling chisels. They are generally longer than the hatchet, and are often beautifully polished. These have been termed "fleshers" and "bark-peelers." The smaller ones may have been used in dressing the skins of animals, and the larger for peeling bark. Flints have been used in cutting and scraping the skins preparatory for use as clothing or other purposes. These various implements fastened in the end of a straight stick would greatly assist in tearing off hides or peeling bark.

Pestles.—Pestles are almost as common as the grooved axes, although they do not occur in the mounds. They are mostly rude, but are frequently found polished and wrought with care. They are of various shapes, but the prevailing form is that of a bluntly-pointed cone, with a knob-like expanse at the base. They are quite common

in the form represented in Fig. 17, reduced to one-half size of nature. Occasionally they are met with having the knob-like expanse at both ends, one being larger than the other. The so-called "rolling-pins" are another variety. They are long, straight and round, tapering towards the end. They are seldom polished, and vary from seven to thirteen inches in length.

FIG. 17.—QUARTZ PESTLE.

Accompanying the pestles are the mortars, which consist of stone slabs or boulders exhibiting platter-shaped depressions. These were used for holding the grain while it was being ground or crushed by the pestles. The "rolling-pins," however, could not have been used in conjunction with the mortars, but instead of them they probably used flat stones upon which to place the parched grain.

Pottery.—An interesting feature of the works of art is the pottery, comprising kettles, water-jugs, cups, vases, urns, etc. In this branch they attained to a considerable degree of perfection. This class or kind of works exhibits a variety of forms and is elegantly finished. These remains are composed of fine clay, and some of the most delicate specimens are worked pure. In some of the coarser specimens the clay is intermixed with pulverized quartz, and in others with salmon-colored mica in small flakes, which gives a ruddy and rather a brilliant appearance. The surfaces are orna-.

mented with curved lines, and upon some have been moulded the images of birds, quadrupeds, and the human form. These vessels were all moulded by hand, for there is no evidence that the potter's wheel was known. From the marks on some of the vessels, it is probable that baskets were first made and then the clay moulded in the basket, and during the process of baking or burning the basket was consumed, leaving the indentations upon the hardened clay. None of these vessels are glazed.*

Pipes.—The stone pipes present the most interesting feature of all the contents of the mounds. Upon these the Mound Builders lavished their greatest skill. The workman in every case has portrayed the object he desires to represent with great faithfulness. Besides the plainer pipes are the more elaborate ones delineating the squirrel, opossum, raccoon, beaver, otter, wild cat, bear, elk, wolf, panther, manatee, grouse, duck, swallow, raven, buzzard, owl, heron, hawk, eagle, and many others. Some of the pipes are small, while others weigh from three to six pounds. The human head and form also occur on these pipes.

Sculpture.—The highest grade of art we discover is in the sculptures, which comprise the heads and figures of men and animals. As has already been stated they have lavished upon these their utmost skill. They are remarkable from the fact that they exhibit the general form and features of the objects sought to be represented. As mere works of art they are of great value in judging the condition of the people, but they are of even greater value for the reason that they go to establish a very extensive intercommunication either among themselves as spread over a vast extent of country, or else with a contemporaneous, allied race. Sculptures of the human head have been found in the mounds, but not frequently. One of them, from the mounds, is composed of a hard, compact, black stone, and is distinguished for the hardness and severity of its outline. The head-dress

*Dr. Foster speaks of a cup from Louisiana, whose surface was uniformly glazed. "Pre-Historic Races," page 245.

falls in a broad fold over the back of the head, as far down as the middle of the neck. It rises into protuberances upon each side of the top of the head, which may represent some particular style of plaiting the hair. A row of holes, fifteen in number, some of which contained pearls, encloses the forehead, and extends as low as the ears. Deep cut lines mark the face, the brow is contracted and the mouth compressed, which give the face an aspect of severity. These heads also vary. In some the muscles of the face are well exhibited, and the forehead finely moulded. The human form is represented as well as the head. Sometimes there is a figure with the body of a bird and the head of a man delicately and symmetrically carved. Masks made from sandstone are found. Among animals are sculptured figures of the manitus or sea cow, the beaver, otter, elk, bear, wolf, wild cat, panther, raccoon, opossum and squirrel. The sculptures of birds are much more numerous than those of animals, and comprise between thirty and forty different kinds. There are also several varieties of the same species: for instance among the owls are the great owl, horned owl, and the little owl. Sculptures of serpents, turtles, frogs, and others have been discovered in abundance.

It is worthy of remark that of all the works of art there is a remarkable avoidance of obscenity. Works of this class are met with among the South American antiquities. Among the Mound Builders there are but two cases known to me. One is referred to by Dr. Foster in his "Pre-Historic Races," that of a female figure, modeled with some artistic skill, upon a clay pipe. The other is engraven upon a stone pipe, now in the possession of G. W. Van Vleck. It is the representation of a female, who appears to be bound with bands about her arms. I carefully examined the pipe; it is very large, weighing about four pounds, and skillfully carved.

Gorgets, or Breast-Plates.—Implements principally composed of striped slate with tapering holes through them have been variously named, and caused much discussion. The most common forms are given in

Figs. 18 and 19. Some have thought they served to size the coarse thread made of bark, rawhide, or sinew, or such material as was used for making cloth. Others argue that they were held in the hand that grasped the bow in order to protect it from the string. By others they have been regarded as ornaments which were strung together and worn suspended from the neck. By others

FIG. 18.—GORGETS OR GAUGES.

it has been supposed that they were shuttles used in weaving; and, again, as badges of authority. There is no doubt but that this people were superstitious, and why may they not have been used as charms to keep off evil spirits, or as safeguards against some unforeseen danger? If they had been used for domestic purposes the edges of the holes would have been considerably worn; but, on the other hand, they are sharp and perfect.

Various other forms are found, such as crescents, single and double blades, etc., which have been regarded as wands or emblems of authority. They are composed of variegated slate, are not numerous, and well finished.

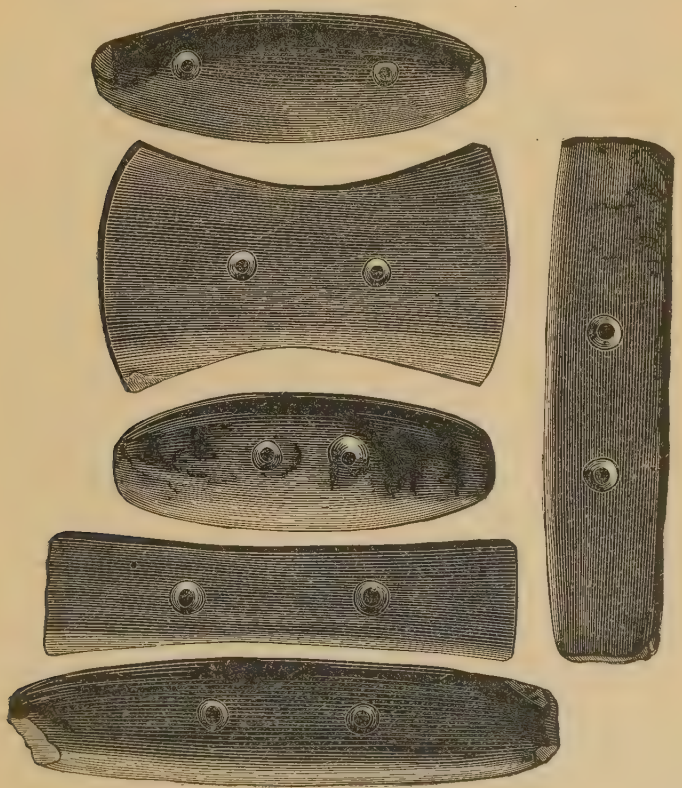


FIG. 19.—GAUGES OR ORNAMENTS.

Tubes.—A great variety of stone tubes are picked up on the surface and found in the mounds. They are polished with care and composed of a fine grain striped slate. The short oval ones were doubtless ornaments, strung like beads upon cords. Others may have been

used as whistles, or, as some writers have thought, as a telescopic help for distant views.

Hoes and Spades.—The largest implements made out of chert or quartzite are the hoes and spades. They are slightly oval on one side and flat on the other, generally tapering towards the ends, the smaller end being attached to the handle. Some of them are finely finished. The size and shape seem to indicate that they were used for agricultural purposes.

Discoidal Implements.—Numerous discs of stone are found scattered over the country from the valley of the Ohio to Peru, South America. A few of them also occur in the mounds. They are circular in form, capsule-shaped, and pierced in the center with a hole, and are often symmetrically wrought and polished from the hardest materials. They are from three to four inches in diameter, and about one inch in thickness. Various other articles of stone occur, such as rings, pendants, etc.

Metals.—The Mound Builders were acquainted with several of the metals, and had their implements and ornaments of copper; silver in the form of ornaments is occasionally found; galena occurs in considerable quantities, while no trace of iron has been discovered. They wrought copper into knives, axes, chisels, awls, spear-heads, and arrow-heads. The copper, for the most part, was hammered out cold, although some of the implements show the mark of the mould. Hence the fact is established that the art of smelting was known to them, probably during the latter part of their occupancy of the Mississippi Valley. These implements, as usual, display skillful workmanship, and are made after different designs.

Ornaments of copper are comparatively abundant. They display considerable skill and are in the forms of bracelets, pendants, beads, gorgets, etc. The bracelets consist of a simple rod of copper, hammered out with more or less skill, and so bent that the ends approach or lap over each other. Some of them are smooth and uniform, and appear to have been originally highly polished. They are usually found encircling the arms

of skeletons, in the sepulchral mounds, and also upon the so-called altars. A large number of discs or medals have been obtained from the mounds and average about one inch and a half in diameter. They are found on the altars where they seem to have been placed together in pairs. They appear to have been pressed into shape, and the sandstones have been discovered in which were circular depressions, where doubtless the plates had been formed. Buttons, also, are found, similar to those worn a generation or so ago.

Articles of Bone.—Awl-shaped implements made of the bones of the deer and elk have been obtained from the mounds. They were used for perforating the hides of animals, and supplied the place of our awl. Many kinds of ornaments abound made out of shells, pearls, sections of the small bones of birds, and the teeth and claws of various animals.

Clothing.—The Mound Builders, in part, used the skins of wild animals for clothing, but for their principal raiment used cloth regularly spun with a uniform thread, and woven with a warp and woof. Fragments of clothing have been taken from a low mound near Charlestown, Jackson County, Ohio. In constructing the Cincinnati, Hamilton and Dayton railroad, a mound was cut through near Middletown, Ohio, and in it, among other things, was found cloth connected with tassels or ornaments. The cloth was in thick folds, and very much charred. The fabric appeared to have been composed of some material allied to hemp, and the separation between the fibre and the wood was as thorough as at this day by the process of rotting and hackling. The thread is coarse, uniform in size, and regularly spun. The process of spinning and weaving as carried on by them is not now known.

CHAPTER VI.

MINING.

Copper — Galena — Obsidian — Mica — Silver — Green-Slate — Copper Mines — Minnesota Mine — Isle Royal — Mica Mining — Obsidian Mines — Other Mines.

The finding of various implements made of the more precious minerals would not in itself indicate that the Mound Builders engaged in mining. Copper was extensively used, and yet this material has been found in various localities. It has been found in pieces of several pounds weight in the valley of the Connecticut, and near New Haven a mass was found weighing ninety pounds. It is found in small pieces in New Jersey, Indiana and Illinois. Small pieces have been picked up in various localities in Ohio. It is probable that the copper found in Connecticut and New Jersey originates from the red sandstone formation, while in Indiana and Illinois it was deposited during the drift. In Ohio it has possibly been dropped by the hand of man.

What is true of copper is not so of galena, obsidian, mica and silver.

Considerable quantities of galena have been found in the mounds of Ohio. Upon one of the altars within a mound in "Mound City" (three miles above Chillicothe) a quantity of galena was found, which had been exposed to the action of fire. It is of frequent occurrence on the sacrificial altars, and met with in quantities of thirty pounds weight. "Plumb bobs" and net-sinkers are met with made out of this material, and yet no original deposits are known in the State of Ohio.

Obsidian, a peculiar glass-like stone of volcanic origin, is obtained from some of the mounds, but in very small quantities, and in the shape of arrow and spear-points and cutting implements. This mineral has not been met *in situ* north of Mexico and east of the Rocky Mountains.

Mica (commonly called isinglass) has been taken in large quantities from the mounds, and often ploughed up in the neighborhood of the enclosures. In the sepulchral mound, in the center of the earth-work at Circleville, Ohio, there was taken out a sheet of mica three feet long, one foot and a half wide, and one inch and a half in thickness. In the year 1828, in one of the low mounds near Newark, Ohio, regular layers of mica plates, from eight to ten inches in length, four or five inches wide, and from half an inch to one inch in thickness, were found covering fourteen human skeletons in an advanced state of decomposition. From this mound there were taken about twenty bushels of mica. As mica is found in large quantities, and carefully laid away in the mounds, it is evident that it was regarded as of great value. It was used for mirrors, ornaments, and, as it has been found covering the skeleton, may have been looked upon as having supernatural properties. Mica is found in New Hampshire and North Carolina. In the former State it has been found from two to three feet in diameter; but there is no evidence that the Mound Builders penetrated that far east, neither have any ancient mines been discovered there. Traces of wrought silver have been found, but they are exceedingly scarce, and constituted no technical importance among them.

The polished stone implements composed of a greenish slate of close grain have already received attention. This stone is not found in original deposits in the valley of the Mississippi, unless it be upon the rim of the basin. It belongs to the oldest sedimentary formation and occurs in considerable masses along the Atlantic coast, and has been observed from Rhode Island to Canada.

From these considerations alone we readily infer that the Mound Builders either engaged in mining or else trafficked with those nations who did so engage. In 1847, about one year before the ancient copper mines were discovered, it was pointed out* that the probable source of the copper and silver was the region of Lake Superior.

The discovery of the ancient mines has set all speculations at rest.

Copper Mines.—In the copper regions of Lake Superior have been found numerous excavations in the solid rock from which the copper has been extracted. Upon examination, it has been discovered that the whole extent of the copper-bearing region was resorted to by this ancient race. The ancient trenches and pits were found to be filled even with the surrounding country, and were not detected until many years after the region had been thrown open to actual exploration. Mining began effectively in 1845, and it was not until 1848 that S. O. Knapp, then the agent of the Minnesota Mining Company, made the discovery. In passing over a portion of the company's grounds, in the winter 1847-8, he observed a continuous depression in the soil, which he conjectured was formed by the disintegration of a vein. Following up these indications, he came to a cavern where he noticed evidences of artificial excavation. On clearing out the rubbish, afterwards, he found numerous stone hammers, and at the bottom was seen a vein with ragged projections which the ancient miners had not detached.

Two and a half miles east of the Ontonagon River (the center of the great copper region of Michigan) is the Minnesota mine illustrated in Fig. 20. This shaft is situated in a wall rock of compact trap. The excavation reached a depth of twenty-six feet, which was filled up with clay and a matted mass of mouldering vegetable matter. At a depth of eighteen feet, among a mass of leaves, sticks and water, Mr. Knapp discovered a detached mass of copper (*m*) weighing

*"Ancient Monuments," 196.

six tons. This mass had been raised about five feet, along the foot of the lode, on timbers by means of wedges, and was left upon a cob-work of logs. These logs were from from six to eight inches in diameter, the ends of which plainly showed the marks of a cutting tool. The upper surface and edges of the mass of copper were beaten and pounded smooth, showing that the irregular protruding pieces had been broken

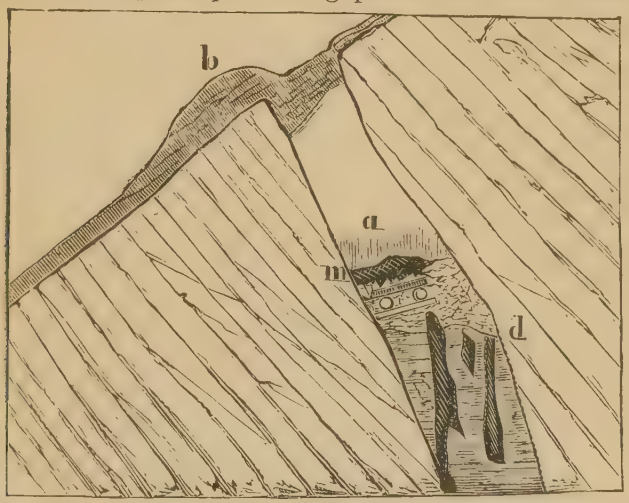


FIG. 20.—ANCIENT MINING SHAFT.

off. Near it were found other masses. On the walls of the shaft were marks of fire. Besides charcoal there was found a stone sledge weighing thirty-six pounds, and a copper maul weighing twenty-five pounds. Stone mauls, ashes and charcoal have been found in all these mines. In further explanation of the engraving, the letter *b* represents the original matter thrown out by the ancient miners; *a*, the angle of the shaft; *d*, three masses of copper.

On the island known as Isle Royal, near the northern shore of the Lake, these ancient works of man are very extensive, and some of the pits are sixty feet in depth. On opening one of the pits of this island,

it was discovered that the mine had been worked through solid rock to the depth of nine feet. At the bottom was a vein of pure copper eighteen inches thick. The works are scattered throughout the island, and are located on the richest veins. These miners were intelligent and experienced, for they not only showed rare powers of observation in locating the veins, but also displayed much knowledge in following them up when interrupted. The excavations are connected underground, and drains are cut into the rock to carry off the water. At one point the excavations extend for over two miles in a nearly continuous direction.

In these ancient mines have been found wooden shovels, used in scraping away the soil. Wooden bowls and troughs of cedar occur. From the splintered pieces of rock embedded in the rim of some of these bowls, it is inferred that they were used for bailing out the water; and as charcoal also occurs, it may be inferred that the rocks were heated and then water was dashed on in order to shatter and destroy the cohesion between the particles. Stone hammers, or mauls, and copper implements are frequently met with. The stone hammers were so numerous that Mr. Knapp alone took away ten cart-loads, and used a portion of them in walling up a spring. They were made of greenstone and porphyry boulders.

From the accumulation of evidence in these ancient trenches, and the copper implements in the mounds, we have the proof that this ancient people not only toiled in building the mounds, but also toiled in the copper mines of Lake Superior. They were a toiling, plodding people. The process by which they worked these mines is very well indicated by the discoveries which have been made. The soil was removed by the wooden shovels after it had been loosened by other implements. By heating the rocks and then dashing water upon them, and by means of their heavy sledges they were able to detach the copper from its matrix. Many of the mauls are merely water-worn boulders, weighing from ten to forty pounds, and show by the fractures that they have

been repeatedly used. Around the stone was cut a groove in order to secure it by a withe, and thus used as a sledge-hammer. With these the projecting ends of the copper could easily be broken off. The industrious miners well knew the value of the precious metal. They sometimes manufactured it at the mines, and sometimes took it home in lumps, and out of it made their copper-axes, gads, chisels, gouges, spear-heads, knives, bracelets, ornaments, etc.

The wide distribution of the copper implements shows that an extensive business was carried on, and to penetrate to Lake Superior, from the valley of the Ohio, required a journey of a thousand miles, which must have been performed during the summer. With them they must have carried their provisions, as there is no evidence of a settled life in that region, such as mounds, village-plats, etc. The climate is too cold for the maturity of Indian corn, and hence it was necessary to go in well-organized companies.

Mica Mining.—While gangs of men were operating the mines of Lake Superior, there were others engaged in searching for mica in the mountainous region of North Carolina. The diggings in the mica regions were open excavations. They seldom attempted tunneling for mica, and wherever there is any evidence of such work it is more like burrowing than cutting a tunnel. Some of the excavations are extended for several hundred feet, the dump material having been thrown out right and left. Whenever a hard point in the vein occurred they worked over it, and then descended again. As in the copper mines, so here the same judgment was displayed. Wherever they did any work, there they discovered the veins, and the richest veins yet discovered show that there the ancient excavations are most extensive. The kinds of mica now refused were then rejected, carrying the best away to their homes in the North. It would appear that when they had mined more than they could transport they would hide it; for in one case several cart-loads had been removed from the mine a distance

of one hundred feet and packed down and buried in an excavation with great regularity.

The same mines that once supplied the ancient inhabitants of the Ohio now supply the market of this country.

Obsidian Mines.—It is not reasonable to suppose that mines of obsidian were worked by the Mound Builders. In order to have done this they would have been forced to take long journeys, the result of which would not have justified the undertaking. Mines of obsidian are found in Mexico and the western side of the Rocky Mountains. Many large and fine specimens of pure obsidian have been found in the volcanic formations in the neighborhood of Snake or Lewis River. It is used for arrow-heads by many tribes of American Indians.

The old obsidian mines which supplied the ancient Mexicans are still to be seen. Hundreds of tons of fragments about the mines and great numbers of pits attest the great importance of this mineral to that ancient people.

It is more than probable that the obsidian came into the possession of the Mound Builders by way of barter. This is further confirmed by the fact of copper implements found in Mexico which came from Lake Superior. It is evident that some system of traffic was carried on. The image of the manatus, the pearls and marine shells, which are peculiar to tropical region, indicate an acquaintance with the South.

Other Mines.—The galena in all probability came from Illinois or Missouri. The greenstones and porphyries, out of which they made their axes, came from the region of Lake Superior, but they are found over the country where they were dropped during the Glacial Epoch. The chert, out of which they manufactured their arrow-heads, spear-heads, hoes and spades, principally came from "Flint Ridge," which extends through Muskingum and Licking Counties, Ohio. This ridge is made of a compact siliceous material. The innumerable excavations, found the whole length of the outcrop, and the piles of chipped quartz indicate how extensively this

ridge was worked. The workshops were not all located here, for other places denote that the flint had been carried away in blocks and manufactured at leisure.

Chert occurs in other localities, and is found scattered over the country in certain regions. But experience taught them that the flint dug from the earth could be more easily split than that which had been exposed to the weather.

In all these operations it is evident that the mining was not only conducted under a well-organized effort, but the Mound Builders had their leaders, or foremen, and were well skilled, and had a thorough acquaintance with their work.

CHAPTER VII.

ADVANCEMENT IN THE SCIENCES.

Intelligence—Geometrical Knowledge—Comparison of Earthworks—Works at Portsmouth—Standard of Measurement—How Formed—Works at Alexandersville—Butler County—Piketon Graded Way—Bridging—Macadamized Roads—Art of Brick-Making—Making Stone Implements—Art of Mining—Position of the Mound Builders.

We can only judge of the condition and civilization of a lost race by the remains which they have left. Nor is it to be supposed that these will give perfect representations, for many things, especially in the fine arts, must necessarily sooner or later perish. The coarser works, made of durable material, the stupendous monuments, are not easily effaced, even by the wearing influence of time.

The intelligence of the Mound Builders has been variously rated. That they were superior to their Indian successors, perhaps no one would dispute. That they were a settled people, every evidence clearly shows. A wandering people, or a people who lived simply by the chase, never could have erected these structures, even in the condition in which they are now found. Their erection would have required an acquaintance with the mechanic arts by a permanently settled people. Nor is it just to rank them much below the ancient people of Mexico and Central America. To the Mound Builders we assign a much greater antiquity, and long ages elapsed from the time of the desertion of these mounds until their discovery and investigation by the Europeans. Hence they were not found in the same condition in which they were when left by their makers.

If the earthworks of Central America had been exposed to the action of the elements as long as the mounds of the Ohio, we probably would see but little difference in their general appearance. But for the present we must content ourselves to judge simply by such evidences as are afforded in the general features of these remains.

The tumuli above named afford us no conception of the advancement of the people. Ancient barrows are found in Europe belonging to savage races, and in order to understand them properly we must not only judge by their contents, but other things must be taken into consideration. We judge the Mound Builders not so much by the mounds, but by the enclosures. The domestic implements also enter largely into forming a proper estimate of their makers.

Geometrical Knowledge.—No one can look over the plans of the Sacred Enclosures without particularly noticing their great regularity of form. By comparing them together he will notice that in many instances the dimensions of some at different points are the same. They cannot be merely striking coincidences, for they must have been made with the view that the one should represent the area of the other. The "Hopeton Work," in Ross County, Ohio, has the square, circle and parallel lines in combination. Both the square and the circle contain an area of twenty acres each, and the parallel lines twenty-four hundred feet in length. At Newark the first circle mentioned in the description (page 32), has an area of twenty acres, as also has the square. The circle of the "High Bank Works" (see page 36) also contains an area of twenty acres. The octagon and circle of these works very much resemble the octagon and circle, in combination, at Newark. It would appear that the "Hopeton" and "High Bank Works" were either modeled after those at Newark, or else the last was a combination of the other two. There is certainly a wonderful similarity, however it may be regarded. Other combinations might be noticed, where different squares have the same dimensions accompanied by one

or more circles. It is evident that these works could not have been made without some standard of measurement and the use of instruments.

At Portsmouth, Ohio, is a complicated series of works containing three groups, and extending for eight miles along the Ohio River, and connected by parallel lines of embankment. Two of these groups are on the Kentucky side of the river; the remaining one, together with the greater portion of the connecting embankment, is on the Ohio side. Almost opposite Portsmouth is a square whose sides are each eight hundred feet. This square has two outworks consisting of parallel walls leading to the northeast and southwest, or parallel with the course of the river. They are exactly parallel to the sides of the main work, and are each twenty-one hundred feet long. The other works, on the Kentucky side, consist of four concentric circles, and cut at right angles by four broad avenues. In the center is a large truncated mound. It is terraced and has a graded way leading to the summit. From this work is an avenue leading to the Ohio River one and one-half mile distant. The avenue begins again immediately opposite on the Ohio side. These parallel walls, equal outworks, and concentric rings, denote an accurate knowledge of measurement, and prove that the plan must have been made before the work was undertaken, or else enlarged after the work was begun.

It is not to be presumed that they had the improved instruments of the present, but used rude methods, and with such skill as to accomplish the same ends as the the modern does with the use of the transit and the gunter's chain. That their work was marked out before commencing the same we have every reason for believing. Of the three, or rather four, sacred enclosures at Alexandersville, not one is complete. These incomplete remains prove that all of these works were commenced at the same time, all abandoned before being finished, and all show what method was pursued in their construction. To appreciate the last remark, we must not rely on the plan of these works as given in the

"Ancient Monuments," which is faultv in more than one particular.

In company with two gentlemen, I traversed almost the entire line of embankments. The three mounds of the smaller circle, on the west of the Miami canal, which are figured as being on a nearly straight line, we found not to be mounds at all, but intended to form component parts of the intended circle, and were not placed in a straight line to the circle, but located on the line of the curve. The fact here brought to light is that the whole line was established before the work was begun, and work was performed on different parts of the line at the same time. This fact is also true of the square a short distance removed from the circle.

A work in Butler County, which will be described in its proper place, also confirms the fact that the works were outlined before the work was begun. In that way we have four mounds of the circle at regular distances apart and connecting at their base thus giving the workmen the line of the curve. This shows a high degree of proficiency and one that approaches the modern idea of planning before constructing. It is, however, to be supposed that many of the works are growths, enlarged as the necessity of the case demanded.

Undoubtedly the graded way at Piketon is only a part of an ancient work originally designed to be a great and complicated structure. Here we have the cluster of mounds not yet enclosed by the circle. One arm of the graded way is extended to these mounds, thereby forming a communication between them. The other arm of the way was never completed. Three sides of the rectangle were finished, and then left in order to first form the diverging line which is two hundred and forty feet in length. Then the main line diverges four hundred and twenty feet; and if the other had been extended still farther the two lines would have come together. The probability, however, is, that this was not designed, but the intention was to throw a circular line around the mounds, beginning at the end of the

minor line. There is another peculiarity here; the walls of the graded way are each ten hundred and eighty feet in length, and in the works in Liberty Township, Ross County, each side of the square is the same distance. Extensive plans are certainly indicated, and that the square and circle should accompany them may be inferred from the Newark Works. It is not to be presumed that the last named were completed, for it may be noticed that two of the avenues (enclosed by parallel walls) end abruptly, as though left in an unfinished condition. These walls and those at Piketon were carried out with some definite purpose in view. It is probable that then as now the ground was first staked off, and these stakes were placed by the engineer and under his direction the work was carried on.

It appears that in certain localities the works were completed as they proceeded—that is, working upon one line until it was finished before beginning on another—while on others they worked on all the parts at the same time.

Bridging.—Men that were thus skilled in geometrical knowledge might have gone farther and understood the art of bridging. The parallel lines at Portsmouth indicate an intimate relation between the works on the Ohio and Kentucky sides, and where the main line is broken by the Ohio River there must have been some method of crossing. But the width of the river, and the inferiority of the tools then possessed would preclude the idea of a bridge. There must have been a ferry, the boats of which must have been fastened to either shore by means of ropes. It should be noted that the parallel walls are not carried down to the water. This defect may have been remedied by two lines of fences formed of palisades connecting the walls with the water.

It is more than probable that the graded way at the fort on Big Twin was continued over the stream by means of a wooden structure. Still there is a possibility or even a probability of this way having been made to protect their gardens at the foot of the bluff, although

there is no indication of an earthwork extending to the creek at the southern extremity.

We read of buried macadamized roads having been discovered in West Virginia, cut by streams, which would indicate some particular mode of crossing a stream.

Art of Making Brick.—It has already been stated that brick was used in the mound at Seltzertown. Some of the earthworks made of clay—with none of that material in that vicinity—would prove that this clay had been moulded into brick. A people who could erect such stupendous structures, and understood the art of moulding as well as they did, would not hesitate to perform any undertaking within their power. They had the perseverance and the will. It is more than probable that all their enclosures, and many of their mounds were faced with brick. It is true that many of the works are composed of surface material, and there no clay has been observed. A wall faced with brick filled in with surface material, after a great lapse of time, would hardly show the traces of clay. Walls, thus regularly laid up, would present a more pleasing appearance to their sacred enclosures, while to their forts it would add strength by preventing the enemy from scaling the walls.

Process of Manufacturing.—The copper implements found in Ohio have been hammered out cold. There is evidence that either the Mound Builders, or else a contemporaneous race understood the art of smelting copper. Daggers, knives, chisels, spear-heads, and awls have been found in Wisconsin upon which the markings of the mould are clearly defined.

While the stone axes required much labor in their finish, yet the Mound Builders in completing them were governed by the shape of the stone. They first found a stone somewhat in the shape of the axe they desired to make, and then by a process of grinding, whetting, or rubbing it was finally brought to the desired form. I have seen quite a number of axes formed by water, and

never retouched by man. I possess a piece of limestone six inches long by three and three-fourths in breadth at the widest part, shaped in every particular like a spade, including the grooves for fastening the shaft; and yet it was entirely formed by the action of water. Advantage was taken of what nature afforded, and what was naturally a long and slow process was thus diminished. Axes are frequently found ranging in incompleteness from the stone in the rough to the finished production.

The flint instruments are not made by blows, but by pressure. By striking the flint it will be broken irregularly, but by strong pressure the flakes are easily disengaged.

Art of Mining.—A rude and savage people would not have made long journeys and toiled in the mines for the more precious minerals, but would have contented themselves with implements made from such stones as could be picked up in surrounding localities. When we consider the extreme extent of country traced to obtain mica and copper, added to the earthworks of Ohio, and other States, and when we remember how extensively these mining operations were carried on, the Mound Builders must appear to us to have been a great and mighty nation. They must have been strong, industrious, and far superior to the aborigines who inhabited the land when it was discovered by the European. It presents the fact that they could discover and utilize what the Indian failed to observe, although he passed over the same land. When the French first came among the Indians of Lake Superior, the latter possessed neither copper kettles nor axes, but only rudely-fashioned copper knives made from water-worn lumps which had been deposited by the glaciers along with the sand, gravel and other loose material.

An industrious people, well settled and extensively engaged in mining operations and various other mechanical pursuits, must have been well skilled, and far from a state of barbarism. Hence, from the foregoing enumeration, in which is imperfectly repre-

sented the great skill displayed, it is evident that the Mound Builders were somewhat advanced in the arts and sciences, and occupied no mean position in life. For their time and surroundings they had made great strides towards a permanent civilization, and must be ranked as one of the great people of ancient times.

CHAPTER VIII.

TABLETS.

Written Language—Frauds—Grave Creek Stone—Opinions of Schoolcraft—of Levy Bing—of Schwab—of Oppert—Authenticity—Controversy—Objections—Letter from Colonel Wharton—Objections Considered—Story of Sir Walter Raleigh—Cincinnati Tablet—Description by E. G. Squier—Authenticity—Doubted—Examined by Robert Clarke—Mississippi Tablet—Berlin Tablet—Other Tablets.

American archæologists have been more or less interested in the question whether or not the Mound Builders had a written language. All the evidence is against the supposition. We have no evidence that they had attained to the same condition as that possessed by the semi-civilized nations of Europe, who themselves had not arrived at the construction of an alphabet. It must be borne in mind that the alphabet is a very high attainment, and belongs to the civilized and enlightened. Nations much in advance of the Mound Builders had not attained to this state, and hence it would be unwarrantable to assign to them such a superiority. It would be a reversal of the teachings of history, and an exception to the law of harmonious development. Notwithstanding this manifest fact, there is hardly a year passes unsignalized by the announcement of the discovery of tablets of stone or metal, bearing some mystical inscription. Under scientific scrutiny, these alleged discoveries are proven to be frauds, or else resolve themselves into very natural productions. So long as there is an expectation that the mounds will yield some-

thing that will give a clue to a written language, it may be expected that these fraudulent operations will be continued.

Grave Creek Tablet.—The Grave Creek mound has already been referred to; also the inscribed stone that was found there. At the time the mound was opened it belonged to Jesse Tomlinson. The work was under the direction of Abelard B. Tomlinson, and was performed at a cost of twenty-five hundred dollars. On the 19th of March, 1838, the work was commenced. An excavation was made towards the center at the north side of the mound, ten feet in height and one hundred and eleven feet long, along the original surface of the ground. At the end of this adit was a vault twelve feet long by eight wide and seven deep. Upright timbers had been placed along the sides of the vault which supported other timbers thrown across which served for a roof. Over these timbers had been thrown loose stone, such as is found in the neighborhood. The timbers were rotten and the stone had tumbled into the vault. In this vault were found two skeletons, one of which was surrounded by six hundred and fifty beads composed of sea-shells, and a bone ornament six inches long. From the top of the mound a shaft was sunk, and at the depth of thirty-four feet from the bottom another vault was found, containing a skeleton surrounded by over two thousand discs cut from shells, two hundred and fifty pieces of mica, seventeen bone beads, and copper bracelets and rings weighing seventeen ounces. It was in this vault that the inscribed stone was found on the 16th of the following June. From a letter written to Mr. P. P. Cherry, March 7th, 1878, by Mr. Tomlinson, it would appear that the stone was found at the end of a second drift which was excavated from the side of the mound to the upper vault. After striking the second vault the men from the first vault drilled upward until the second fell to the bottom.

The inscribed stone is an oval disc of white sandstone nearly circular in form, about three-fourths of an inch thick, and an inch and a half in diameter. On one of

the flat surfaces are engraved three lines of unknown characters. An illustration is given in Fig. 21. I have very carefully compared this cut with that given in Schoolcraft's "Indian Tribes of the United States," published by authority of Congress, and discover that it differs, perhaps not materially. Our illustration purports to be a *fac simile* of that given by Schoolcraft. In the original the face-shaped character at the bottom on the right has a dot above the straight line as though an "eye" was intended. The straight line just above this figure runs into the A-shaped letter and is not continued across the bottom of that letter. The first character on the left third line from the top is closed where the parts come together. It is left open at the top in our engraving. The B-shaped letter, on the right, same line, is not an exact counterpart. There are two or three other defects that might be noticed.

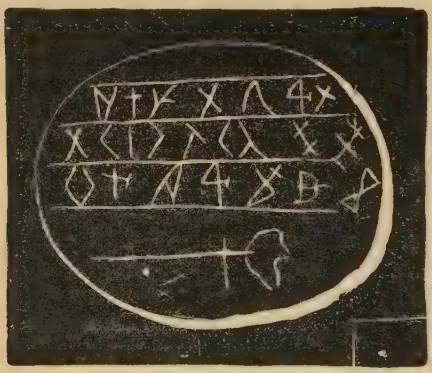


FIG. 21.—GRAVE CREEK INSCRIPTION.

Many efforts have been made to decipher these characters. Henry R. Schoolcraft, having examined the inscription in 1843, arrived at the following conclusions: "Having a copy of Mr. March's Grammar of the Icelandic, of 1838, the appendix to which contains the *Runic alphabet*, I observed some corresponding characters. By reference to an inscription from Dr. Plott's History of Staffordshire, it was also seen that there were several of the characters quite identical with the ancient form of the Celtic alphabet, as employed in Britain in the so-called Stick-Book. A copy of the inscription

(Townsend's copy*) was transmitted to Professor Rafn, at Copenhagen, the distinguished Secretary of the Royal Society of Northern Antiquaries. Mr. Rafn does not find it to be Runic, but is disposed to consider the inscription Celtiberic" . . . . . The Copenhagen antiquarians were not able to read it, but acknowledged a large portion of its characters to be in the Spanish type of the Celtic. The "Stick-Book" character of the ancient British Celtic has a resemblance to it. This is perceived in seven of the characters "which are common to both inscriptions, namely, the Celtic and the Virginic. There would appear to be some grounds here for the Welsh tradition of Madoc." † Colonel Whittlesey quotes Mr. Schoolcraft as having made the following analysis of the twenty-two separate characters of this stone: "Four Greek; four Etruscan; five North Runic; six Ancient Gaelic; seven Old Erse; ten Phœnician; sixteen Old British."‡

At the Congress of Nancy, Monsieur Levy Bing made a report upon this inscription from an imperfect engraving. He states that "after different combinations of the twenty-three letters I obtain the following result, that is, eight Canaanite words, having complete sense; forming a phrase which corresponds admirably with the symbol below the inscription. This symbol is a naked sword horizontally directed toward an arc, and supported upon the human head imperfectly designed, which reposes upon two long arms. This must represent the idea of Sovereignty and Conquest." The translation of the twenty-three Canaanitish letters is as follows: "What thou sayest, thou dost impose it, thou shinest in thy impetuous clan (?) and rapid chamois."

Monsieur Maurice Schwab, in 1857, gave the following rendering: "The Chief of Emigration who reached these places (or this island), has fixed these statutes forever." M. Oppert, who followed him, gave this translation: "The grave of one who was assassinated here. May

*Appeared in "Cincinnati Chronicle," Feb. 2, 1839.

†"Indian Tribes," pp. 121, 124.

‡"Archæological Frauds," Number 33.

God to revenge him strike his murderer, cutting off the hand of his existence."*

Upon the face of it all this is but idle speculation. This stone has been given more importance than it really merits. The inscription takes in too wide a range of alphabetical characters to represent one distinctive language. If it does represent a language, then inscriptions containing similar characters would have been found in different localities. If, in reality, it does represent a language, then the Mound Builders must be placed higher in the scale of civilization than any other nation has ever attained under similar conditions. That the stone or tablet was deemed of some importance by the owner is proven from the fact of its having been entombed with him. It may have possessed, to him, some mysterious importance in his journey to the future state of existence: and hence a charm to protect him from the evil influences that might beset him.

Authenticity.—No relic from the mounds has occupied so much attention or caused so much controversy as the Grave Creek Stone. No doubt was ever cast on the authenticity of this stone until nearly ten years after its discovery, unless the refusal of Dr. Morton to publish it in his *Crania Americana* be taken as an exception to this statement. Public attention was particularly called to its authenticity in tract number nine, entitled "Archæological Frauds," by Colonel Charles Whittlesey, published February, 1872. During the month of November, 1876, he followed this up with another tract which discussed the question more fully. In both of these tracts Colonel Whittlesey claimed that the inscription was a fraud. These two pamphlets probably led Mr. P. P. Cherry to investigate the subject, the result of which was a mass of testimony which overthrew all that had been written against the inscribed stone. This evidence was published by that gentlemen during the year 1877. That gentleman must have been astonished to find so much "living evidence" forty years after the

*"Archæological Frauds," No. 33.

stone had been found. At the meeting of the Ohio State Archæological Society held at Wooster, September 25th, 1878, Professor M. C. Read read a paper impeaching the genuineness of the tablet. Colonel Whittlesey published another pamphlet during the month of April, 1879, which indirectly reaffirms his former position, devoting a portion of it to what purported to be newly-discovered testimony.

I have carefully gone over the whole of this evidence, both *pro* and *con* and have no hesitancy in declaring that if the authenticity of the "Grave Creek Tablet" has not been established, then no reliance can be placed upon human testimony. When I began this investigation I had no doubt but a fraud had been perpetrated. I am aware that a shrewd lawyer can pick flaws and badger witnesses, but our duty as observers and investigators is to proceed upon fair and candid testimony let the result be what it may. From the character of some of the objections or arguments offered it is evident that there is a certain class fully determined that the genuineness of this inscription shall not be admitted. The objections which have been offered may be briefly summed up as follows:

1. E. G. Squier, as early as 1847, pronounced it a modern fabrication. This view was sustained by Dr. E. H. Davis, in 1859.

2. To use the language of Colonel Whittlesey, this stone "is now universally regarded by archæologists as a fraud."

3. "Dr. James W. Clemens communicated to Dr. Morton all the details of the exploration of the Grave Creek Mound . . . . . without any reference to the discovery of the inscribed stone."

4. Again to use the language of Colonel Whittlesey, none of the "gentlemen profess to have seen the stone imbedded in the undisturbed earth of the mound. It was first seen by them on the barrows of shoveled earth, as the workmen brought them out along the adit."

5. The evidence that it came from the mound is by no means conclusive.

6. The testimony of the witnesses who claim to have been present when the stone was found is contradictory.

7. The stone, when found, was not submitted to a critical examination for the purpose of determining its genuineness.

8. The inscription is of such a nature that any laborer of ordinary intelligence could have manufactured it.

9. The inscription was manufactured by David Gatewood for the purpose of deceiving or hoaxing Mr. Tomlinson.

This is a formidable array of objections, and if they could be sustained would certainly establish the claim of fraud. However, they are neither objections nor arguments but simply, for the most part, unwarrantable assertions. Bold declarations will sometimes carry conviction, but such declarations, when not supported by evidence, in the end, only weaken a cause.

Before correcting these statements or assumptions I will introduce a letter from Colonel James E. Wharton, who was present when the stone was found, and who is a thoroughly competent witness. The letter was written at my request, and after he had seen the recent articles published upon this subject. I have thought it best to publish the letter as written.

PORTSMOUTH, OHIO, June 19, 1879.

J. P. MACLEAN:

Dear Sir—In answer to your polite request to state for your use what I know of the Grave Creek inscribed stone, I will be as brief as possible and state all the facts that are fully and clearly impressed upon my memory bearing upon its being found and giving the reasons why I know it to have been a work of great antiquity.

In 1835 I went to Wheeling, Virginia, on the Ohio River, purchased the *Wheeling Times* and a year or two after converted it into a daily paper, which I published and edited until 1855, when the pro-slavery feeling becoming too hot for my pronounced anti-slavery views, I sold out and went North. Grave Creek is twelve miles below Wheeling on the river—a broad or rather semicircular flat embracing nearly a thousand acres, on which was a small village, the county-seat of the new county of Marshall. The village contained a small tavern, store or two, blacksmith shop, doctor, lawyer,

minister, and altogether perhaps five hundred inhabitants—one of those dry old Virginia towns. On this plain and near the southwest corner is the large mound, seventy-five feet high and about nine hundred feet in circumference at the base. On the north line and partly in the village was an old fort, enclosing, I should judge, ten acres, a perfect octagon, having bastions and other points of strength. Eastward, nearly a mile, was a smaller mound, and several still smaller were scattered over the plain.

In 1837, or before, the old gentleman who owned the mound and other property died, leaving several children, nearly all grown. They determined to see what the mound contained, and early in 1838 they commenced a shaft from the top, and a drift in from the north side on a level with the ground—the drift about ten feet high and six wide, running to the center. I had been at the place two or three times, and had made a few acquaintances, but remember the names of none now except Dr. Ganz and a Mr. Curtis.

Dr. Morton, of Philadelphia, was preparing his *Crania Americana*, and invited Dr. Clemens, an old and highly respected physician of Wheeling, to go down, report the result, and send him whatever was of interest for his work. Being an intimate friend, he invited me to go with him. On going to the end of the drift we found some *debris*, and a man or two at work arching, and another wheeling in brick and wheeling out the dirt that seemed to have fallen. We went out and lazily engaged in hauling over the dirt for curiosities, some few of which we found. We were joined by some of the village idlers and Dr. Ganz, at whose office, nearest the mound, the greatest portion of the curiosities was stored. During the search a man, whom I supposed to be a workman, but have since believed was Abelard Tomlinson, came up and handed Dr. Clemens the inscribed stone which has become so famed. I naturally supposed it had been then found from its appearance and the circumstances. There was some talk about it, but no doubt of its being a genuine find. I examined it closely. It was a hard, dark gray sandstone, the letters mostly Phœnician, and I believe I was the only one present who had ever seen that alphabet or the Celtic or Bardic, which were somewhat similar; they were clear, deep and carefully cut, the stone oval, the edges neatly beveled all round on both sides. There were in the cut creases particles of sand that partially adhered to it, and on one side a blotch of sand of some size that adhered so as to require scraping to remove. The stone was of its natural color, not smooth or greasy feeling as it would have been if it had been handled; the edges of the letters were rounded off, not sharp as they would have been if recently cut. These facts forbid any doubt of its being genuine. Subsequent reflection presented other proofs.

The letters were not all Phœnician, showing that the one who cut them had been long mingling with others, and his language had been corrupted, whereas a fraud would naturally have copied all the letters from the published alphabet; the ornament on it is well proportioned, showing that the maker was accustomed to seeing what he copied. There was no motive for the fraud, no one anywhere in the region who could have made it if he would, and few frauds of the kind had then been heard of.

Dr. Clemens, I think, took the stone to Wheeling, as it was there sometime afterward. A plaster cast was taken of it, from which the imperfect engraving was made that was published in the *Chillicothe Pioneer*, and afterward in the *Cincinnati Chronicle*. No one in Wheeling or Grave Creek ever doubted that it was the work of the ancients. Had it been a fraud, more than one must have known when and how it was made, and a hint of it at least must have escaped, yet no such thing occurred.

Dr. Clemens prepared a long and elaborate report, including a description of the stone as of primary importance, which I heard read and approved. This Dr. Morton saw fit to reject, and published but a brief description of the opening of the mound and of the skull sent him. Dr. Clemens resented this as is shown by letters published by Hon. Sherrard Clemens, and Dr. Morton partially apologized for the liberty he had taken. The stone was afterwards placed in Dr. Ganz's office at Grave Creek, and was for a time in a show case in the drift with the hatchets, beads, arrowheads, etc., that were found in the mound.

The first one who wrote of this stone as a fraud, and the only one until a few years since, was E. G. Squier, and it is due to the truth of history that I should state what he *knew* of it. I forget the year, but it was somewhere between 1838 and 1843 that he came from Connecticut with a letter to me. He was in my office some hours and seemed a smart young man enough, but I observed from his crude inquiries about a little collection I had that he knew nothing of archæology. He went to Chillicothe where he edited a paper, got hold of Dr. Davis' collection and notes, skimmed over the state some, collecting what notes he could, and in 1847 went East to publish "Monuments of the Mississippi Valley." He then told me he had never seen the stone, and asked me to take him to Grave Creek to see it, which I did; but we found it had been taken from Dr. Ganz's office and could not be found. It was not recovered for some weeks after. Squier went East the same day, regretting he had not seen it; yet, having only seen the imperfect copy published in the *Pioneer*, and knowing nothing of the circumstances of the finding, he, as I am told, published, the same year, an article in the

Ethnological Journal denouncing it as a fraud. In 1850, as I learn, Dr. Wills De Hass deposited this stone in the Smithsonian Institute The only true and correct copy I have ever seen of it is in Schoolcraft's work, vol. 1, plate 3, page 123. Yours truly,

J. E. WHARTON.

The probability is that the authenticity of this inscription would never have been called in question had not Dr. Samuel George Morton refused to make mention of it in his *Crania Americana*. Soon after he was followed by Mr. Squier, who claimed that there were "insuperable objections to its reception." These objections consist of the statements that no intelligent observers writing on the spot at the time of the excavation made any mention of it; that no notice of its existence was made public until after the mound was opened for public exhibition, and that the character of the inscription is antagonistic to all the ancient remains of the continent, so far as known.*

All the objections, statements, or assertions are fully and completely swept away by the following answers:

1. E. G. Squier condemned this stone before he ever saw it, and hence did not give it a critical examination. Dr. Wills De Hass, in a letter to Mr. P. P. Cherry, under date of August 7th, 1877, says: "E. G. Squier never took the trouble to inquire whether the tablet was genuine or not, beyond some doubt, and attempted to discredit the discovery in a fit of pique against Mr. Schoolcraft, towards whom he cherished personal animosity . . . . . The Grave Creek inscription was carefully described in a paper which I read before the American Ethnological Society, New York, February, 1858, at which meeting Mr. Squier was present and took back all his objections, moving in conclusion a vote of thanks for the value of the contribution. His few followers have not been candid enough to do the same." This testimony certainly settles the authority of E. G. Squier on this subject. It is more than probable that Dr. Davis, as many others have been, was influenced by the objections Squier had raised.

*"Ancient Monuments," p. 274.

2. The claim that the stone is "universally regarded by archæologists as a fraud" does injustice to the candor and acute judgment of Colonel Whittlesey. I think he would not make that statement at the present time. Dr. De Hass, in the letter above quoted, declares "that no investigator, whose opinions are worth noticing, doubts the genuineness of the inscription. Colonel Whittlesey does not exactly repudiate, but inclines to doubt. I am sorry for this, as I regard him as an earnest, cautious investigator."

3. Dr. James W. Clemens, in communicating to Dr. Morton all the details of the exploration of the mound, did most specifically refer to and describe this tablet. Colonel Wharton, in his letter already given, shows that Dr. Clemens did give a description to Dr. Morton, and that Morton partially apologized for refusing to publish it. Hon. Sherrard Clemens, of St. Louis, a son of Dr. Clemens, in a letter to Mr. Cherry, of May 4th, 1876, says: "My father complained very bitterly of the discredit Dr. Morton threw on the sculptured or inscribed stone found by him in the mound at Grave Creek, and ignored by the doctor in his 'Americana.' He demanded the return of his manuscript, and my impression is that he received it."

4. Against the declaration, that none of the "gentlemen profess to have seen the stone imbedded in the undisturbed earth of the mound," may be placed the solemn declaration of Mr. Abelard B. Tomlinson: "I will, in the presence of God, before whom I must expect shortly to appear, being now sixty-eight years old, give the event of my finding it, according to my recollection, which is clear and distinct, although thirty-eight years have elapsed since the event . . . . . This stone was found in the upper vault. . . . . I removed it with my own hands, as I supposed from its ancient bed, believing it to be a genuine antiquity." (Letter to Mr. Cherry, August 3, 1876.)

5. The evidence that the stone came from the mound is of the clearest and most conclusive character. It is testified to by Colonel Wharton, Dr. Clemens, Mr.

Tomlinson, who found it, and P. B. Catlett, who did the brick work. It is not necessary to repeat the evidence here.

6. It must be admitted that there are discrepancies between the witnesses now living,* but however great they may vary, they are a unit in the declaration that the stone came from the mound. The only real contradiction is that between Messrs. A. B. Tomlinson and P. B. Catlett.

Mr. Tomlinson declares, "I removed it with my own hands." Mr. Catlett says, "I was the man who found the stone." (Letter to Mr. Cherry, May 6, 1876.)

*Illustrative of the fact that men do not see alike is the following curious story: "Sir Walter Raleigh, in his prison, was composing the second volume of his history of the world. Leaning on the sill of his window, he meditated on the duties of the historian to mankind, when suddenly his attention was attracted by a disturbance in the court-yard before his cell. He saw one man strike another, whom he supposed by his dress to be an officer; the latter at once drew his sword and ran the former through the body. The wounded man felled his adversary with a stick and then sank upon the pavement. At this juncture the guard came up and carried off the officer insensible, and then the corpse of the man who had been run through. Next day Raleigh was visited by an intimate friend, to whom he related the circumstances of the quarrel and its issue. To his astonishment his friend unhesitatingly declared that the prisoner had mistaken the whole series of incidents which had passed before his eyes. The supposed officer was not an officer at all, but a servant of a foreign ambassador; it was he who had dealt the first blow; he had not drawn his sword, but the other had snatched it from his side, and had run *him* through the body before anyone could interfere; whereupon a stranger from among the crowd knocked the murderer down with his stick, and some of the foreigners belonging to the ambassador's retinue carried off the corpse. The friend of Raleigh added that the government ordered the arrest and immediate trial of the murderer, as the man assassinated was one of the principal servants of the Spanish Ambassador.

"'Excuse me,' said Raleigh, 'but I cannot have been deceived, as you supposed, for I was eye-witness to the events which took place under my own window and the man fell there on that spot where you see a paving-stone standing up above the rest.' 'My dear Raleigh,' replied his friend, 'I was sitting on that stone when the affray took place, and I received this slight scratch on my cheek in snatching the sword from the murderer, and upon my word of honor, you have been deceived upon every particular.'

"Sir Walter, when alone, took up the second volume of his history, which was in MS., and contemplating it, thought—"If I cannot believe my own eyes, how can I be assured of the truth of a tithe of the events which happened ages before I was born?' and he flung the manuscript into the fire."—S. Baring-Gould's "Curious Myths of the Middle Ages," pp. 114-116.

In all investigations where human testimony is given the character of the witnesses is to be taken into consideration. What stronger indorsement would a person desire than that which comes from an opposer? Professor Read, having championed the cause of those who discredit the authenticity of the tablet, in the paper referred to,* gives the following indorsement of the witnesses: "Colonel Wharton is evidently a conscientious observer, and I will not question his knowledge as to the difference between an ancient and modern inscription. . . . Mr. Catlett evidently is a frank, candid witness." Speaking of Colonel Wharton and Mr. Tomlinson, Colonel Whittlesey says, (Tract 33): "No one questions the sincerity of their belief that it is of the age of the mound itself."

We here have credible men, even according to those who oppose their evidence, then, why should we seek to invalidate the proof and impeach the testimony? Is it at all probable, that three respectable men, two of them having no interest whatever in the matter, would conspire to perpetrate and maintain a fraud without any prospect or hope of reward for a period of forty or more years? Besides this others must have been a party to it who have long since departed this life.

It is not incredible that there should be discrepancies in the testimony. Forty years must evidently blot some things out of the memory, while other things would be dim and confused. Upon this point Colonel Whittlesey observes: "They do not precisely agree in the details, but are as nearly in accord as is usual in such cases."† One thing, however, would cling to the memory, and that is a stone was found, and that stone came from the mound. But suppose, after a lapse of forty years, these witnesses should testify alike on all the details, we would find that the same persons, who urge the discrepancies now, would then declare that there must be collusion for the testimony does not vary enough.

*Published in "American Antiquarian," vol. 1, No. 3.

†Tract 44.

7. It is unquestionably true that the stone was not critically examined at the time of its discovery in order to determine its authenticity. Why should it have been? In all that occurred during the opening of the mound nothing transpired which would create suspicion. Is it at all likely, that even now, should anyone, engaged in opening a large mound which had never been opened before, and at the center or at any distance within should discover an implement or other work of art, would at once give it a critical examination in order to determine its authenticity? Would such a person leave the implement *in situ* and immediately send for an individual of "critical culture" to determine whether or not it was really there? Still the fact remains that there were present, at the time of the discovery, certain men who were fully competent to pass judgment upon it. Dr. Clemens could not have been deceived, and he never doubted it. The testimony of Colonel Wharton has already been given. John W. Erwin* informs me that on June 20, 21, 1838, (four days after the discovery of the tablet) in company with James McBride and George W. Jones, (the latter of Camden, Ohio,) he visited the Grave Creek Mound. They saw and carefully examined the Grave Creek Stone, and it bore all the marks of age as described by Colonel Wharton. Mr. Erwin firmly believes in its genuineness, and states that James McBride never doubted its authenticity. It must be borne in mind that both James McBride and John W. Erwin were practical archæologists, and at the time of the opening of the Grave Creek Mound were as thoroughly competent to pass judgment on anything that pertained to the Mound Builders as any one on this continent. Henry R. Schoolcraft, the eminent antiquarian, examined the stone in August, 1843, and in his "Indian Tribes" gave an illustration of it, believing it to be ancient, and consequently genuine.

8. Suppose it should be admitted by all that any laborer of ordinary intelligence could have formed the characters on the stone, would that prove the stone to

*One of the present State Civil Engineers.

be a fraud? Are we to suppose that the Mound Builders had arrived at such a degree of culture that the laboring man of to-day cannot equal their devices or sculptures? If we are to submit to such a method as this where shall we end? Not a single thing has been brought forth from the mounds but almost any mechanic, with his improved implements, can surpass it. Does the objector intend to have us infer that some laboring man of ordinary intelligence manufactured and put it in the vault? Why, then, not be liberal about it, and make the same claim for all the relics found in the mound, or, indeed, in any other mound? But consider this simple fact: If this tablet is a fraud, and placed in the mound during the excavation, would not the fine grains of sand formed by the cutting instrument, or the sharp edges of the characters, have exposed the imposition? A "laborer of ordinary intelligence" would not have taken every precaution against exposure. Again, it would naturally appear that if the perpetration of a fraud had been intended it would have taken an entirely different turn: a larger stone and a more pretending inscription would have been given.

9. From 1847 to 1878 it was busily promulgated that the stone was a fraud, and yet the perpetrator remained unknown. It was even intimated that Mr. Tomlinson was the guilty party. In February, 1878, Colonel Whittlesey obtained the track of the so-called miscreant. The man who possessed the information was Mr. Boreman, postmaster at Parkersburg, West Virginia. Professor I. W. Andrews was informed as to the new discovery and had an interview with Mr. Boreman, but "his report of the interview is that it was not very explicit." "Mr. Boreman is confident that some one told him that David Gatewood admitted that he had cut the characters on the stone and threw it into the excavation while the men were away, but cannot recall the person who informed him."

In August, 1878, Colonel Whittlesey visited Moundville, and, after interviewing several parties, among whom were two of Mr. Gatewood's daughters, arrived at

the following conclusion: "It must be admitted that the proof is not conclusive against Gatewood, and amounts to little more than suspicion."* Mr. Gatewood died about fifteen years ago, and, of course, cannot speak for himself.

In this controversy there is an important fact that has been entirely overlooked. Schoolcraft tells us that in one of the minor mounds at Grave Creek there was found a curious device; also, "a circular stone without inscription, but identical in material with the inscription stone." (Illustrations of both are given.) The "curious device" has characters on it composed of or made up by straight lines.† These facts must lend weight to the testimony of the witnesses.

It should be fully considered in forming an opinion on this question that not a single individual who examined this stone, for a great many years after its discovery, ever doubted its genuineness; while out of the whole phalanx of doubters, probably, not one ever saw it, but if so, not prior to 1850.

Cincinnati Tablet.—At the corner of Fifth and Mound streets, Cincinnati, once stood a mound about twenty-five feet high with a base of seventy feet diameter. During the month of November, 1841, it was removed in order to grade one of the streets and an alley. In the center of the mound and slightly below the surrounding surface, a skeleton, greatly decomposed, and other relics were found. The "Cincinnati Tablet" was taken from under the skull of the decayed skeleton. A view of this tablet is given in Figures 22 and 23.

The representations here given are of the actual dimensions of the original stone. The artist who made the engraving had the tablet before his eye and his work is a correct copy. Out of all the engravings which have been made Robert Clarke pronounces this to be the best. So far then as general purposes are concerned the reader can be as well benefited by our engravings as he would be though he held in his hand the original.

*Tract 44.

†"Indian Tribes," Vol. 1. p. 122-123.

FIG. 22. CINCINNATI TABLET—FRONT VIEW.

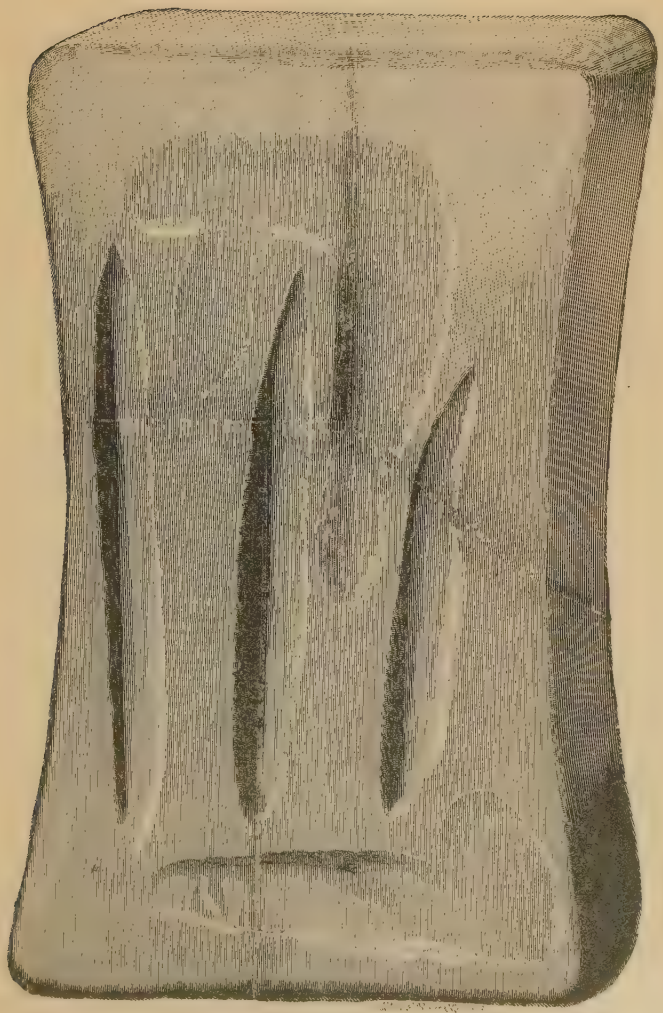


Fig. 23. Cincinnati Tablet—Reverse View.

These cuts are correct representations of the original. No better idea of the tablet can be conveyed than in the following description and comments:

"The material is a fine-grained, compact sandstone, of a light brown color. It measures five inches in length, three in breadth at the ends, two and six-tenths at the middle, and is about half an inch in thickness. The sculptured face varies very slightly from a perfect plane. The figures are cut in low relief (the lines being not more than one-twentieth of an inch in depth), and occupy a rectangular space four inches and two-tenths long, by two and one-tenth wide. The sides of the stone, it will be observed, are slightly concave. Right lines are drawn across the face, near the ends, at right angles and exterior to these are notches, twenty-five at one end, and twenty-four at the other. Extending diagonally inward are fifteen longer lines, eight at one end and seven at the other. The back of the stone has three deep, longitudinal grooves, and several depressions, evidently caused by rubbing—probably produced in sharpening the instrument used in the sculpture.

"Without discussing the 'singular resemblance which the relic bears to the Egyptian *cartouch*,' it will be sufficient to direct attention to the reduplication of the figures, those upon one side corresponding with those upon the other, and the two central ones being also alike. It will be observed that there are but three scrolls or figures—four of one description and two of each of the others. Probably no serious discussion of the question, whether or not these figures are hieroglyphical, is needed. They more resemble the stalk and flowers of a plant than any thing else in nature. What significance, if any, may attach to the peculiar markings or graduations at the ends, it is not undertaken to say. The sum of the products of the longer and shorter lines ($24\times7+25\times8$) is 368, three more than the number of days in the year; from which circumstance the suggestion has been advanced that the tablet had an astronomical origin, and constituted some sort of a calendar.

"We may perhaps find the key to its purposes in a very humble, but not, therefore, less interesting class of Southern remains. Both in Mexico and in the mounds of Mississippi have been found *stamps* of burned clay, the faces of which are covered with figures, fanciful or imitative, all in low relief, like the face of a stereotype plate. These were used in impressing ornaments upon the clothes or prepared skins of the people possessing them. They exhibit the concavity of the sides to be observed in the relic in question—intended, doubtless, for greater convenience in holding and using it—as also a similar reduplication of the ornamental figures, all betraying a common purpose. This explanation is offered hypothetically as

being entirely consistent with the general character of the mound-remains; which, taken together, do not warrant us in looking for anything that might not well pertain to a very simple, not to say rude, people."*

Various other views have been given, some having thought it to be a record pertaining to the standard of measurement, because of the seemingly systematic variation of curve and scale in the sides, and others think they can trace the figure of an idol.

Authenticity.—The genuineness of this relic was called in question by Colonel Whittlesey, in "Archæological Tract Number Nine." In looking over Wilson's "Pre-Historic Man" he saw a written leaf pasted in the book, upon which were comments by Dr. Jared P. Kirtland, bearing date of December, 1871. In this statement Dr. Kirtland declares that in the spring of 1841 it was presented to himself and Professor John Locke for sale. Locke examined the engraving through a magnifier, and remarked sarcastically, "I would advise you before you attempt to palm this off as a piece of antiquity, to carefully brush from the excavations in the stone the fine grains of sand formed by the cutting instrument." Dr. Kirtland then examined the stone in a like manner, and plainly detected the imposition. The Doctor further states that he afterwards learned that this stone was cut and engraved in a marble shop in Cincinnati.

In the fall of 1876 Robert Clarke published a pamphlet of thirty-four pages, in which was a vindication of the Cincinnati Tablet. This treatment of the genuineness of the tablet is exhaustive and removes all doubt as to its authenticity. Mr. Clarke thinks it must have been another tablet referred to by Dr. Kirtland, for this one was not found till the following November, and on December 7, 1841, was examined by a society of scientific gentlemen. Professor John Locke "was a man of rigid truthfulness, and had an impatient contempt and hatred of imposture or fraud," and he took a special interest in this tablet; had a mold made of it and distributed quite a number of casts among his friends, and never was

*"Ancient Monuments," p. 275.

heard to doubt or dispute its genuineness, but believed it to be a true relic of the Mound Builders. Mr. Clarke, however, falls into an error in stating that "no doubt is cast upon it for thirty years." In the first edition of Dr. Daniel Wilson's "Pre-Historic Man," (p. 417), Mr. Gest is quoted as saying: "So difficult is it to imitate, with our cultivated hands and eyes, the peculiar imperfection of this cutting, that some excellent judges who at first doubted the genuineness of the relic have changed their opinion upon trying to imitate it."

Mississippi Tablet.— In 1870 there was found a tablet in a mound near Lafayette bayou in Issaquena County, Mississippi, which has the same reduplication of figures in the carved work as exists in the Cincinnati tablet. It is composed of a fine-grained sandstone, circular in form, about an inch thick, with a smooth, slightly convex surface. Upon it, in low relief, is a representation of two bird-headed, short, thick rattle-snakes, each swallowing a long, slim sort of snake, which coils around the body of its devourer. One of the serpents has four rattles, and the other three. On the reverse side is a circle, and exterior to it the circumference is divided by fifteen arcs, and from their intersections are notches, which divide the stone into fifteen sections. In the center occurs a mortise hole. It is said that this stone has a slight resemblance to the famous Solstitial tablet found in the city of Mexico.

Berlin Tablet.—This tablet was found June 14, 1876, by Dr. J. E. Sylvester and Linzey Cremeans, near Berlin, Jackson County, Ohio. It was found in a small mound situated on the second bottom of a small tributary of Dixon's Run. The stone, which is six inches long, three and five-eights wide, and half an inch thick, composed of a fine-grained sandstone of a grayish, brown color, occurred on a level with the original surface, placed on its edge with the ends pointing east and west. Both sides are engraved, the style being of that kind known as line-engraving. One side is a reduplication of the other. By the aid of the imagination several figures can be traced, such as a human figure, a double-bladed oar,

FIG. 24.—BERLIN TABLET—FRONT VIEW.

Fig. 25.—Berlin Tablet—Reverse View.

a serpent, a club, a duck, etc. It probably is a labyrinth, or the study of a plan of some proposed work which the artist had conceived.

We give wood cuts of both sides of this tablet, size of nature. The front view shows the stroke made by the mattock. The lines are evenly cut, and of the same depth throughout, showing that the workman was well skilled in his art. The reverse side is poorly executed. The lines are often mere scratches, and sometimes doubled as if the artist had made a mis-stroke. Three indentations will be noticed, through two of which the lines have been carried, while one, which is the deepest, and running across the end, either cuts away a part of the work, or else the design was not carried over it.

Upon first inspection it would appear that the front view was first executed, and upon the back the workman sharpened his implements. Afterwards a beginner attempted to copy this, with what success the picture fully illustrates.

Other Tablets.—Various other tablets might be commented on which represent curious scenes, and, instead of throwing light upon the condition of the Mound Builders, rather cast more darkness upon the subject. Some of these will be referred to in the following chapter.

CHAPTER IX.

FRAUDS.

Two Classes of Frauds — Canard — Moon Hoax — Runic Inscriptions — Vault in the Palisades of the Hudson — Tumulus in Utah — William Tell — Pocahontas — Sacrificial Tablet — Wilmington Tablets — Questioned — Operations of David Wyrick — Newark Holy Stone — Likeness of Moses — Ten Commandments — Stone from Michigan — Axe from Butler County — Inscriptions from Fremont — Rock Inscriptions — Nott and Gliddon.

A certain class of frauds has been perpetrated which should at least have a passing notice. To hoax has become a mischievous habit among Americans. It is principally of two kinds, one of which tries the credulity without resulting in harm, while the other is deliberate fraud, perpetrated wholly at the expense of truth, and with a desire to impede investigation. The result of all this has been to make the men of science more wary. And so cautious have they become that even actual discoveries have been discredited. There are frauds which have a curious history, and have resulted in giving new meanings to words. The word *canard* is of French origin and means *a duck*, but in the English language means only an extravagant or ridiculous fabrication. This perverted meaning is due to a French writer who set afloat an absurd story relative to the great voracity of ducks. He alleged that twenty ducks having been placed together, one of them was killed and cut to pieces, feathers and all, and then thrown to the other nineteen, which immediately devoured it. The same was repeated until only one duck was left, this one

having eaten all the rest in a very brief time. This story was circulated in all the journals of Europe and America. Hence ridiculously absurd stories have been called *canards*.

The most ingenious of all stories set afloat, and the one given almost universal credence, is known as the "Moon Hoax." It was published in New York about forty years ago, and purported to be a series of discoveries made in the moon by Sir John Herschel, during his residence at the Cape of Good Hope. It is a well known fact among astronomers that, with a given-sized object-glass, the power of the telescope is limited by the degree to which the image in the focus of the glass can be magnified; the light remaining the same, the more the size of the image is increased the darker it becomes. This writer alleged that by a great improvement in the telescope the image could be illuminated by artificial light. By the application of this idea and using an eye-glass of great magnifying power, Sir John Herschel observed moving animals on the moon so distinctly that their forms were actually discovered. Even learned professors in colleges were duped, failing to detect the scientific absurdity of illuminating a shadow in order that it might be more highly magnified.

A young law student in the city of Washington pretended that he had discovered a series of Runic inscriptions on the face of a rock in the Potomac River, and the same was given to the journals for publication. The various ethnological journals copied it as the truth and by the Scandinavian antiquarians it was hailed as another evidence that the Northmen had early explored this country.

A story was published in Europe concerning a remarkable vault, discovered in the Palisades of the Hudson, that contained many statues and inscriptions, all of which only existed in the mind of the writer.

During the year 1869 a Kansas paper published an account of some imaginary professor having discovered a tumulus near Evanstown, Shelby County, Utah, in which was a vault eight feet long, three wide and four

deep. In the cavity was found a skeleton, which immediately crumbled upon being exposed to the light. There were also found an ordinary-shaped earthen pot, an iron bracelet with a spring clasp, two medicine stones, similar to Tennessee marble, shaped like a cigar, full of holes, and of half-pound weight, and a plate of the purest silver. This article was soon after acknowledged by the editor as having been written by a sub-editor in order to offset certain reports on Colorado.

This class of frauds has a great vein of fun in it, and becomes interesting instead of damaging. The truth is soon seen and the joke enjoyed. Not so is the deliberate fraud which is persisted in. Some of these have been hunted down and completely exposed. It may be hard to acknowledge that William Tell did not shoot the apple from off his son's head, or that Pocahontas did not save the life of Captain John Smith, but before the inevitable we must bow and acknowledge that the stories are unworthy of belief.

Memorials from the mounds are numerous, and not unfrequently something is announced entirely out of the usual line of discovery. The frauds of history are repeated in tablets or inscribed stones purporting to have been taken from the mounds. Some of these contain on their face the evidence of fraud, while others require the closest scrutiny.

In previous editions of this work, a paragraph was here inserted, specifying that a certain tablet (not named, but which referred to the Davenport Tablet) was a fraud. Recently, I had the pleasure of examining not only the tablet itself but also the history of its discovery, and am now fully satisfied that injustice has been done both to the relic and its discoverers. My previous statement was based on information which I thought to be trustworthy. This paragraph is inserted in hopes to rectify the error. A full, fair and impartial report, with illustrations, may be found in the Academy's Proceedings.

Wilmington Tablets.—Of all the finds from the mounds none equal the Wilmington Tablets. In every respect all previous memorial stones are surpassed. I have

never seen these tablets, but have carefully examined the cuts in the pamphlet published by Dr. L. B. Welch and J. M Richardson, who claim to have made the important discovery. The mound, from which these tablets are said to have come, is situated three and one-half miles from Wilmington, Ohio, near the turnpike leading to Harveysburg. Tablet "No. 1" is of Waverly sandstone, three and seven-eights inches wide, four and seven-eights long, and five-eights of an inch thick. The obverse side of this stone is entirely covered with figures or symbols, among which are two grinning idols terminating in the body of a fish. This tablet is encircled with the representation of an exceedingly beautiful arrow, terminating in two arrow points, one of which is attached to the other. The second tablet consists of engravings upon a wand or badge of authority. These engravings are clearly defined, and if the pictures are exact counterparts of the originals, then they are clearer than any other engravings left by the Mound Builders. Upon one side we have the picture of a man holding an implement in one hand, and a spear in the other. At one end of the implement, and also at the end of the spear, are half-moon shaped ornaments fastened to the handles. The face of the man bears but little resemblance to the human features engraved on the pipes and pottery of the Mound Builders. The face is unlike any known type of mankind, while the moccasins are not unlike those of the Indians. Near the center is a double-headed serpent, and at the opposite end is a symbolical representation formed in sixteen squares among which is a duplicate of the double-headed serpent near the center. Upon the opposite side of the wand we encounter another human figure, which seems to be making some kind of an offering to an alligator, while behind it is a rattle-snake in the act of striking a panther.

The authors of this pamphlet claim that several things are settled by these discoveries, among which we may note the following: 1. The exact type of the Mound Builders: they were brachycephalic, or short-headed, with bold massive forms, or just such men as we would suspect

had made these great structures. 2. The crescent-formed ornaments were used as a hand-hold to the spears. 3. The so-called Indian battle-axe is of Mound Builder origin. 4. It establishes the costume, showing that the "wearer thereof was an inhabitant of a warmer climate."

One of these tablets the authors have called the "Richardson Tablet," and the other "relic has been named by Mr. Richardson the 'Welch Butter-fly,' in honor of Dr. L. B. Welch, of Wilmington." The Introduction is written by L. B. Welch, D. D. S, in which he declares that "we are at a loss to express how great would be our chagrin did we for a moment think that any doubt could be entertained as to the genuineness of the articles." On the eighth page the authors declare that "we well recollect the cry of fraud that was raised against the Cincinnati Tablet when it was found . . . . . but as to the circumstances attending the discovery of the relics herein described, we are free to say that no chance for doubt exists, and having enjoyed a privilege no others ever have, that of seeing the Richardson Tablet and the Cincinnati Tablet placed side by side, we do most unequivocally pronounce the Cincinnati Tablet genuine."

There are certain queries and considerations which naturally arise that may be noticed. 1st. If any person having the crescent-shaped ornament should attach the same to the end of the handle of a spear or battle-axe for a hand-hold, how long would it last after the first strain? It is evident to anyone that in such a position and for such a purpose it would be easily broken. 2nd. Why should the authors have expressed themselves in reference to their chagrin, should the authenticity of these articles be doubted? 3d. Was there a cry of fraud when the Cincinnati Tablet was discovered? This tablet was found in 1841, and the "cry of fraud" was not raised until over thirty years after. It is true that some had doubts concerning it, but these doubts were not very loud, nor were they raised into a "cry," for had such been the case Robert Clarke, who is well posted in the history of this tablet, would have mentioned it in his phamplet. The "cry" must have been ex-

ceedingly feeble. It is hardly probable that the doubts expressed by some of Mr. Gest's friends were heralded abroad. 4th. Why should the authenticity of the Wilmington Tablet make the Cincinnati Tablet unequivocally genuine? 5th. Admitting their authenticity and the genuineness of everything else that has appeared under the sun, what is there in them to lead to the following conclusion as expressed on the eighth page? "We do unhesitatingly say that in these tablets we have the fact well established that pre-historic man, upon this continent, possessed a written language: not a pictorial language, but a language composed of different and distinct characters, well and plainly written."

The costumes of the human figures attract the eye. No modern tailor could make a more complete fitting suit than that worn by the male figure. The pantaloons and close-fitting jacket are distinctly modern, and just such as all have seen worn by Americans at one time or another. The other figure is dressed in the same attire as is frequently used by female performers at a circus.

Further criticisms are unnecessary. It will be sufficient to say that these relics will never be appreciated by archæologists. It is possible that they may have been found as described; but as being either of Mound Builder or Indian origin the very outlines are against the supposition. If of Mound Builder origin, then all the sculptured pipes, and pottery, and many other things which have been found in the mounds must be assigned to a different race.

Operations of David Wyrick.—David Wyrick, of Newark, Ohio, was an uneducated man, but on the subject of mathematics possessed decided ability. He had held the office of county surveyor until he was forced to retire on account of long-continued attacks of acute rheumatism. He was regarded as an eccentric character and incapable of deliberate deception. He had adopted the idea that the Hebrews were the builders of the earthworks of the West, and as often as his disease would permit he sought diligently for proofs of his theory. His first discovery was made during the

month of June, 1860. This discovery consisted in what is known as the "Newark Holy Stone," and was found about a mile southwest of the town, near the center of an artificial circular depression, common among the earth-works. As soon as he found it he ran away to the town, and there with exultation exhibited it as a triumphant proof of his Hebrew theory. Upon examination it proved to be a Masonic emblem representing the "Key Stone" of an arch formerly worn by Master Masons. The Hebrew inscription has been thus rendered into English: "The law of God, the word of God, the King of the earth is most holy." The stone did not have the appearance of antiquity, and probably was accidently dropped into the depression, and then covered over by the accumulation of loam and vegetable matter continually washed into the center of the cavity.

Wyrick continued his researches and soon made a startling discovery. During the summer of 1860, with three other persons, he repaired to the spot where the stone mound had stood (see page 53) and there dug up the trough which had been re-entombed by the farmers in 1850. In the following November Wyrick, with five other men, met at this spot and made still farther examinations. They found several articles of stone, among which was a stone box enclosing an engraved tablet. Upon one side of the tablet is a savage and pugnacious likeness of Moses, with his name in Hebrew over his head. Upon the other side of this stone is an abridgment in Hebrew of the Ten Commandments. Archæologists never had much faith in the Holy Stone and the discovery of Moses and the Ten Commandments soon established Wyrick's character as an impostor. "Not long after this he died, and in his private room, among the valuable relics he had so zealously collected, a Hebrew Bible was found, which fully cleared up the mystery of Hebrew inscriptions 'even in Ohio.' This had been the secret and study of years, by a poverty-stricken and suffering man, who, in some respects, was almost a genius. His case presents the human mind in

one of its most mysterious phases, partly aberration and partly fraud."*

Stone from Michigan.—An engraved stone was plowed up on the eastern shore of Grand Traverse Bay. The stone is sandrock, half an inch thick with both faces flat. The arrangement of the letters is confused, the characters lack individuality, and it is difficult to determine which was intended to be the upper side. By the aid of a magnifier it has been detected that the engraving is fresh and recent and made by one who was not an expert.

Axe from Butler County, Ohio.—This is a grooved stone axe covered with English letters, the purport of which is that in 1689 Captain H. Argill passed there and secreted two hundred bags of gold near a spring. The letters are so rude and fresh as to deceive no one versed in antiquities.

Inscriptions from Fremont, Ohio.—About thirty years ago there was found in a mound near Fremont (then Lower Sandusky) a series of oval mica plates, "inscribed with numberless unknown characters, probably containing the history of some former race that inhabited this country." Upon examination, these plates were found to be of that variety of mica known as "graphic mica;" hence the "unknown characters" were simply natural workings.

Rock Inscriptions.—Before closing what we have to say relative to frauds, and indirectly to the consideration of a written language, we should give a passing notice to Rock Inscriptions, although it has not been ascertained whether or not any of them were made by the Mound Builders. The inscriptions have been observed at various points within the United States. Their direct object is not understood. The inscriptions in Ohio, which have been prominently noticed, occur near Barnesville, Belmont County, near Wellsville, near Newark, near Perrysburg, at Independence, Cuyahoga County, and other places.

*Tract Nine.

If the Mound Builders had a written language, they were in possession of abundant means to have perpetuated it. Numerous plates of copper and polished slate were at their command, and if they possessed this art, letters would certainly have been engraved upon them, and uniform characters would have been found from the Great Lakes to the Gulf.

The following observation from Nott and Gliddon's "Types of Mankind," (p. 283), may be quoted with propriety: "No trace of an alphabet existed at the time of the conquest of the continent of America; but some tribes possessed an imperfect sort of picture-writing, from which a little archæological aid can be derived; though we are compelled to look chiefly to traditions, which are often vague, and to the light which emanates from the physical characters, antiquities, religions, arts, sciences, language, or agriculture."

We should hesitate a long time before placing the Mound Builders higher intellectually than the ancient Mexicans or Peruvians. All pretences to a discovery of alphabetical characters should be regarded with doubt, and not received unless supported by the most convincing or unquestionable testimony.

CHAPTER X.

CIVILIZATION.

Growth—Agriculture—System—Maize—Tobacco—Potato—Government—Priesthood—Subjection of the Masses—Religion—Sun Worship—Serpent Worship—Idolatry—Idol from Illinois—Idols in Tennessee—Amusement—Military.

All the cultured nations had their eras of barbarism and semi-civilization before they entered upon their career of prosperity and refinement. It is possible that the Mound Builders grew out of a state of savageism. When they left the valley of the Ohio they were no longer barbarians, but were making rapid strides towards a higher state of existence. As to their exact condition, we may never be able to unravel it. We can approximate, but to tell their actual position or condition in life is beyond the grasp of human attainment.

Agriculture.—If no other proof existed save that of the size and number of the mounds, it would be sufficient to establish the fact that the Mound Builders were, to a certain extent, tillers of the soil. The earth-works not only indicate that an immense amount of labor was expended upon them, but also required time, and the efforts of a vast multitude of men. As has already been stated, a people subsisting solely or principally by the chase, could not have erected these structures. It has been estimated that in the hunter state it requires fifty thousand acres for the support of one hunter, and as there are twenty-five million four hundred and forty-six thousand seven hundred and seven acres in Ohio, we then could have, upon the above estimate, but five hundred and nine

able-bodied men, supported alone by the flesh of wild beasts in Ohio. Even the Indians were forced to partially support themselves by the cultivation of maize, and in order to secure enough game were compelled to hunt in Kentucky, and yet their numbers were by no means great. During the period of occupancy by the Mound Builders, there were certainly districts densely populated, as indicated by the remains, which do away entirely with the idea of dependence upon the chase, and prove that they subsisted upon the products of the soil. In order to have supported a large population, the soil must have been cultivated in a methodical manner. Their system of agriculture must have been very complete in order to have sustained so large a population. These monuments arose slowly, and untold multitudes constantly toiled upon them. In order to have supported the laborers there must have been plenty of cheap food, which in a well-populated district could only be produced by skilled labor. Their chief subsistence was undoubtedly maize, and their settlements were located within the area best adapted to its cultivation. No other plant was better adapted to their use, for it is highly prolific, easily cultivated, and the product of a single acre is sufficient to sustain, for an entire year, about two hundred able-bodied men. They cultivated other grain, and the tobacco plant, and such fibrous plants as could be used for making cloth. Their numerous pipes attest that they were inveterate smokers, from which we may conclude that tobacco was cultivated with great care and raised in abundance. As the potato and tomato are indigenous to America, it is more than probable that their great value was known, and hence large fields devoted to their culture.

Government.—It would be an easy matter to assume that the government of this people was not unlike that of the ancient Mexicans. In this we might not be altogether justified. If the Mound Builders had a more ancient origin than the Mexicans, then some advancement must be allowed for the latter. It would be more safe, however, to judge simply by the remains, for

the present, and then, if an intimate relation can be established between the two, it would necessarily follow that their methods of government were similar. Every indication shows that it was largely a government of the priesthood, and, as history teaches us, such a government is one not to boast of. Where the priesthood rules, oppression prevails. The people have no voice, and must obey in mute silence. Such a government is only content with the complete subjection of the masses, which results in personal servitude, and an abnegation of all political and personal rights. It can not be said that the Mound Builders were entirely ruled by the priests, but undoubtedly to a very great extent. There were probably very powerful rulers, or chieftains, who had a voice with the priesthood, and who together controlled the masses, and had supervision over their labor. The numerous works of this people, and the useless but gigantic tumuli, give evidence that they were not free men, but in a condition of servitude. These men, by stupendous labor, with rude implements, would not have erected, of their own accord, the Grave Creek and other mounds simply to gratify a ruler who wished to perpetuate his name.

This government apportioned the work among the masses and selected the avocation for each and every one. It implies a complex system, and one showing rare judgment in order to keep the masses down. While a portion were engaged in toiling on the earth-works, others provided for them the necessaries of life, and all things worked together that the government of the priesthood might be perpetuated. It is possible that the lands, buildings, etc., all belonged to the rulers.

In such a condition of affairs a redress of grievances is scarcely possible. In all conditions and stages of society there must at least be a pretence to right the wrongs of the people, and hence it may necessarily follow that some of their enclosures, called sacred, were used for council-houses, as places for adjudicating.

While they had a very strong centralized and despotic government, it is extremely doubtful if the race consti-

tuted one nation or empire. It is probable that they had separate governments, for the different settlements, although alike, yet an interchange of priests preserved them, in one sense, as a compact nation.

Religion.—Among nearly all tribes, however degraded they may be, there is a recognition of an invisible, controlling power. The object of worship, from a low form, ultimately becomes an Invisible, Spiritual Presence. Among the ancient inhabitants of Central America and Mexico the worship of the sun was practiced, as well as among other nations of antiquity. It is not improbable that the Mound Builders erected their great temple mounds to the worship of the sun, moon and stars. Upon these mounds were erected other structures made of wood, and in them the perpetual fires burned by day and by night. If the so-called altar-mounds were places of sacrifice, then more light is thrown upon this subject, and in imagination we may behold strange and revolting rites. Upon these altars, then, were offered up their most precious ornaments, and the most skillful works of their hands. No gift was too costly, none too highly esteemed. Their most elaborately carved pipes, their garments woven with patient toil, their precious materials brought from long distances, were freely offered to appease the wrath of their deities. Nor is this all. Around those altars the priesthood assembled, and with strange songs, marched in solemn procession, while one or more of their numbers offered up a human being as a sacrifice. Not one, but many of their own nation, or some poor victims taken in war, were condemned at once to pour out their blood in obedience to the forms of a superstitious and sanguinary religion.

Among a few archæologists it is maintained that the serpent was worshiped, and as evidence of this fact there may be cited the Great Serpent Mound in Adams County, figures of the reptile on tablets, etc. It has been farther claimed that a portion of the walls of Fort Ancient bears a resemblance to the serpent. This is the wall forming the lower enclosure, and made after the form of two serpents. Their heads are represented by

the two mounds which cover the entrance into the narrow enclosure that connects the two grand divisions of the fort. These serpents are apparently contending with each other, and their bodies bend in and out and rise and fall like two serpents engaged in fighting. At the opposite end from the heads the walls taper down until the opening or gateway is reached. It may be that these walls were constructed in the form of serpents, but the fact must remain that before and since this discovery was announced no one has been able to detect the form of a serpent. Dr. John Locke who gave it the most careful survey, assisted by twelve engineers, was forced to establish one hundred and ninety-six stations in order to complete the survey, which required two days, and yet this careful surveyor, who was well informed on such subjects, failed to notice the serpent symbol. After the "important discovery" had been made, a party of gentlemen visited the fort, having in view the serpent symbol, but failed to notice anything unusual in the structure.

It is not here denied that the serpent was worshiped by the Mound Builders, but it is maintained that there is no evidence to that effect. It is a fact that a person may start out with any theory, and soon he will be overwhelmed with proof. It might as well be maintained that the Mound Builders worshiped man, the club, and other objects both animate and inanimate. It will soon be discovered that the proof is abundant. If, however, the Mound Builders were connected with the ancient Mexicans, it is probable that their religions were not unlike.

The evidence that they were idolators, or worshiped graven images, is by no means conclusive. It would appear that if such had been the case, large graven images would have been found in the vicinity of the temple mounds. A few images have been found which have been taken for idols. In Union County, Illinois, was found a white porphyry stone, weighing forty pounds, carved into the human form. The image is in a sitting posture, with the left leg drawn under the body,

and the right leg drawn up to the thigh (?), supporting thereon the right hand. The face is finely chiseled, preserving all its parts and perfect in its anatomical proportions. Its height in the sitting position is thirteen inches, and if the whole body was extended it would measure twenty-five and one-half inches. Dr. Joseph Jones in his "Antiquities of Tennessee" gives an account of quite a number having been found in that State. Other writers also describe them, so that images in Tennessee appear to be numerous.

It is manifest that this race was very superstitious, for it must be confessed that the element of superstition entered more into their worship than that of simple devotion. If they had not been pre-eminently a religious or more probably a superstitious race these great structures for purposes of worship never would have been erected, and thus serve as monuments for future generations to judge of their servile condition, and their subjection to the fear of their gods, as well as their rulers.

Amusement.—It is doubtful if a people can become so subdued as to be restrained from all amusement. Amusement is almost a necessity; it is an element in man's nature. If there are those who are strangers to such a sense they are to be pitied, and their condition shunned. However despotic the government of a priesthood may be, and however servile their subjects, yet the attempted banishment of all amusement would be a hazardous experiment. Before the removal of the Creeks to their reservation they had what were called "Chunk Yards," or rectangular areas occupying the center of the town. At the opposite corners of them stood the "Great Winter Council House." Some of these yards are from six hundred to nine hundred feet in length, and of proportionate width. The area is level and sunk from two to three feet below the lands surrounding it. In the center of this area is a low circular mound, in the middle of which stands the "Chunk Pole," which is a high obelisk, made of wood from thirty to forty feet high, on the top of which is fastened some object which serves as a mark to shoot at. This area is designed for a public place of

exhibition, for shows, games, etc. Formerly the most barbarous and tragic scenes were enacted within them. Of the origin of these structures the Indians know nothing. They were found when the Indians occupied the country, and by them were kept partially in repair. They were, probably, originally used for games, shows, etc. Remains of this class occur near Mount Royal, Florida. They are situated upon an eminence overlooking the shores of the lake and command an extensive and charming view. The mound is a conical pyramid forty feet high. From it leads off an avenue, enclosed by two parallel walls, to an artificial pond one-half mile distant.

The discoidal implements spoken of elsewhere were probably used in games which may have been similar to that played in the chunk yards. The game called "chungke" is played by two parties, one of which rolls the stone on its edge, in a direct line, a considerable distance towards the middle of the other end of the ground. Each party has a sharpened stick, about eight feet in length, and after they have run a few yards each darts his pole after the stone. When the pole strikes the stone it counts two, and in proportion to the nearness of the poles to the stone one is counted, unless both spears strike at equal distances. They will play this stupid game all day, and stake their ornaments on the result.

Military.—The military skill of these people has been largely considered in their works of defense. But from the character of the people it can hardly be considered that they were warlike. They engaged in war as a matter of necessity and not from choice. This necessity for engaging in war will more properly be considered under the head of "What Became of Them?"

From these considerations we may be able to judge whether or not they were superior to their Indian successors. When every part is taken into contemplation, their civilization and condition must appear remarkable. That they were a remarkable people of an original civilization there is no room for doubt.

CHAPTER XI.

ANTIQUITY.

Evidences—Period of the Villagers—Garden Beds of the Northwest—A Probable Race—Forest Trees Upon the Works—Encroachments Made by Streams—Vegetable Accumulations—Condition of the Skeleton—Local Position of Earthworks—Terraces—Facts Established—How Long Were They Here—Origin of the Race.

In considering the antiquity of the Mound Builders the preconceived opinions of the majority will be antagonized. There is a feeling of distrust pervading the public mind in reference to every discovery and every argument which carry back the origin of man to a period beyond the Historical Era. The true scholar, the true thinker, and the man of science do not share this feeling. We must believe upon evidence, however unwilling we may be to accept a new truth or discovery. The recent origin of man has already been sufficiently exploded, and we are warranted in ascribing to man a very great antiquity. This being the truth we need not be surprised should a higher antiquity be assigned to the Mound Builders than was anticipated.

In order to ascertain the time when the Mound Builders occupied the valley of the Ohio, we have a variety of indisputable evidence. It is not claimed by any one of reputed authority that the exact time can be named when this people ceased to live north of the Ohio, but there is abundant evidence that their works belong to a distant period. All the facts taken together give an array of evidence which should not only be thoroughly studied, but also form a very interesting part

of the investigation. These facts may be presented in the following manner:

1. *The Period of the Villagers.*—It is pretty well established that since the time of the Mound Builders, and prior to the advent of the Indian, a race known as the "Villagers" occupied certain districts of this country and made the "garden beds" found in northern Indiana, lower Missouri, and in the valleys of the Grand River and St. Joseph's, Michigan. These beds exist in the richest soil in that part of the country. Some of the lines of the plats are rectangular and parallel, others are semicircular and variously curved, forming avenues, differently grouped and disposed. The ridges are low, averaging four feet in width, and the depth of the walk between them is about six inches. They cover from ten to one hundred acres, and sometimes embrace even three hundred acres. The beds are laid out with great order and symmetry, and have certain peculiar features that belong to no recognized system of horticulture. These beds are entirely different from the system of field culture as practiced by the Indians, and no similar remains are connected with the enclosures of Ohio.

It is evident that these beds do not belong to the epoch of the Mound Builders, for in some cases they extend over mounds, which certainly would not have been permitted by the builders. Nor is it to be presumed that these villagers immediately succeeded their predecessors, for these encroachments must have been long after the mounds had been abandoned and their purposes forgotten.

The Indians have no traditions concerning them and know nothing about this people.

It is a singular fact that but few, if any, of the usual aboriginal relics are found within them. The beds are the only memorials of this race. But from them we readily draw the conclusion that they were a settled, peaceable people, of industrious habits and advanced tastes. Their implements and their dwellings must have been of wood.

Time must be allotted for them to take possession of the country; then growth and decadence would have required ages, so that an almost incredible period must have elapsed from the time they took possession of the country until they retired. If it should be established that the animal mounds were made since the structures in Ohio were built, then another people lived between the time of the Villagers and the Mound Builders, which would give a still greater antiquity to the latter. There must have been a great lapse of time between the abandonment of these beds and the period when they were discovered by the white man. Schoolcraft tells us* that in 1827 an oak tree on one of the "garden beds" in Grand River Valley, Michigan, was cut down, which measured thirty-eight inches in diameter, at the height of twenty-six inches above the ground, and which denoted three hundred and twenty-five annual rings of growth. The oak was not the first tree to grow on these beds after they had been deserted, for other trees must have preceded. This will be treated under the second head.

There is another consideration which appropriately comes under this head. Since the period of the Villagers and before the advent of the Indians, still another race may have existed. This belongs to the possibilities, and is not incredible. Suppose that the North American Indians had been destroyed by a pestilence or war before Pamphilo de Narvaez landed in Florida, what traces of them would have been left? They have left, in the States, no distinctive trace of their existence, unless it is in the little hillocks used for hills of corn, which are not yet entirely obliterated.

2. *Forest Trees upon the Works.*—The great age of the works is indicated by the growth of forest trees upon them. It is evident that the mounds and the walls of the enclosures were kept free from the intrusions of the forest so long as they were occupied for sacred or secular use. Yet when this country was first visited by the Europeans they were covered with forest trees of great

*Indian Tribes, vol. 1, p. 57.

dimensions. On one of the embankments of "Fort Hill," Highland County, E. G. Squier noticed a chestnut measuring twenty-one feet in circumference; also an oak, which stood on the wall, though fallen and much decayed, then (1846) measuring twenty-three feet in circumference; and all around were scattered the trunks of immense trees, in every stage of decay. Actual examination of the chestnut tree showed the existence of nearly two hundred annual rings to the foot, which would give nearly six hundred years as the age of the tree. Upon one of the mounds at Marietta stood a tree of eight hundred rings of annual growth. On the Ontonagon River Captain Peck observed some stone mauls and other implements, at a depth of twenty-five feet, and in contact with a vein of copper. Above these was the trunk of a large cedar, and over all grew a large hemlock indicating a growth of three hundred years. To this must be added the cedar, which showed even a greater age, and then the protracted period during which the trench was slowly filled up, which would require many more centuries.

After these works had been abandoned many ages must have elapsed before the trees began to grow upon them. In speaking upon this subject President Harrison, who was well skilled in woodcraft, observed in an address delivered before the Historical Society of Ohio, "that several generations of trees must have lived and died before the mounds could have been overspread with that variety which they supported when the white man first beheld them, for the number and kinds of trees were precisely the same as those which distinguish the surrounding forest. We may be sure that no trees were allowed to grow so long as the earth-works were in use; and when they were forsaken, the ground, like all newly-cleared land in Ohio, would for a time be monopolized by one or two species of trees, such as the yellow locust and the black and white walnut. When the individuals which were the first to get possession of the ground had died out one after the other, they would in many cases, instead of being replaced by the same species, be suc-

ceeded (by virtue of the law which makes a rotation of crops profitable in agriculture) by other kinds, till at last, after a great number of centuries (several thousand years, perhaps), that remarkable diversity of species characteristic of North America, and far exceeding what is seen in European forests, would be established."

I have my doubts about the little hillocks, formed by uprooted trees, having any particular bearing upon this subject. I have noticed the hillocks upon the very top of the wall. The hillocks must sooner or later be worked to a level with the surrounding surface. In some woods I have not noticed any, while in other places they are abundant. Their endurance is owing to their particular positions and the kind of earth composing them.

3. *Encroachments Made by Streams.*—There are several instances of the streams encroaching upon the works and carrying portions away. In order to get an approximate length of time, from these encroachments, it must first be observed how many inches the streams advance per year, and even then it would be impossible to tell how far the works were originally placed from the stream. Something definite could be reached in a careful study of the fort near Carlisle, elsewhere described, (see p. 25). It was stated that at the northeast of this structure is a graded way leading to Twin Creek. A portion of this grade is still from two to three feet high along the terrace. There must have been a necessity for this grade. The necessity, primarily, may have been a swamp, and, secondarily, to protect their field. The questions for computation are, how long has it taken Twin Creek to cut the thirty-one feet (of depth); what relation has that to the drainage of the swamp, and the time required?

These streams have not only encroached upon the works, but afterwards receded, in one instance (High Bank Works, Ross County), to a distance of three-fourths of a mile. The intervening space, when first observed by the white man, was covered with a dense forest. This recession and subsequent growth of the forest must have taken place since the river encroached upon the works.

4. *The Vegetable Accumulations in the Ancient Excavations.*—One of the pits at "Mound City" is eighteen feet deep, by one hundred and twenty feet in width, and over two hundred feet in length. The accumulation of vegetable deposit at the bottom is thirty inches. In the ditch, accompanying the wall of the fort, four miles below Hamilton, is a deposit of three feet and eight inches of vegetable and other matter. The trenches of Lake Superior have already been spoken of, and the filling of them must have been very slow and the work of untold ages.

5. *The Decayed Condition of the Skeleton.*—In nearly every case the skeleton has been found in such a state of decay as to forbid an intelligent examination. Probably not over a half dozen have been recovered in a condition suitable for restoration. This is all the more remarkable from the fact that the earth around them has invariably been found wonderfully compact and dry. The locality, the method of burial, the earth impervious to water, all tend to the preservation of the body. Well-preserved skeletons have been taken from the tumuli of Europe, known to have been deposited there not less than two thousand years ago. The mode of burial was not better adapted for the preservation of the body than that of the Mound Builders. Yet the latter when exhumed is in a decomposed and crumbling condition. From this consideration alone a greater antiquity must be assigned than that ascribed to the barrows in Europe.

6. *Local Position of the Earth-works.*—None of the mounds and enclosures occur on the lowest-formed of the river-terraces. There is no good reason why builders should have avoided erecting these structures on the lowest terraces, unless the terrace was formed since, or was being formed about the time the Mound Builders took their departure. In some instances avenues running upon the lowest terrace would seem to indicate the beginning of the formation of the terrace about the time the works were abandoned.

The streams generally show four successive terraces, which mark four distinct eras of their subsidence. The

last, upon which these works do not occur, must have been the longest in forming, because the excavating power necessarily diminishes as the channels grow deeper. This geological change proves, for the mounds, a very great antiquity; how long, we could only approximate.

On the Lower Mississippi the ancient monuments are invaded by water. In this case, the fact must be borne in mind that the bed of the stream is rising from the deposition of materials brought down from the upper tributaries, where the excavating process is going on.

7. *Effigy of the Mastodon.*—The discovery of the "Big Elephant Mound" in Wisconsin establishes the fact that the Mound Builders were acquainted with the form of the Mastodon. Instead of helping the antiquarian out of difficulties, this discovery increases them. No bones of any of the elephant family have been found in the ancient monuments of the Mississippi Valley. The striking form of this family is not delineated on their pottery. In all the Mound Builder relics from the valley of the Ohio, no trace of the elephant family has been found. The remains of the Mastodon and Mammoth have been found in the gravel and other deposits. These animals must have ceased to exist in the United States long before the Mound Builders began to flourish. Still the Mastodon must have existed somewhere. The mound of Wisconsin is no ideal structure. If the "Report of the Davenport Academy of Sciences" is to be accepted, then this effigy is not an isolated case. It states that a member of the association has found a carved pipe in the form of an elephant. This, however, is not incredible, on account of the discovery of the Wisconsin mound. It is evident that in order to have delineated the form of this animal, it must have been seen. If, however, the builders of the mound saw the Mastodon in the valley of the Ohio or Mississippi, then to the Mound Builders must be assigned an antiquity which other evidences would not warrant. It must be that during their intercourse with the Mexicans the

animal was there seen.* As Mexico was probably the last retreat of the proboscideans on this continent, and as they became extinct a great many centuries ago (several thousand years, perhaps), we have it definitely settled then that a great antiquity must be assigned to the Mound Builders.

The great antiquity thus given to the Mound Builders, instead of making more obscure the subject, in reality throws more light upon it. It gives the student of anthropology a starting point in his investigations as to the relative position this lost race occupied to the most ancient Mexicans. It does away with a vast amount of speculation, which has been indulged in by those who desire to establish an Asiatic origin. It declares an original civilization, and an antiquity that surrounds itself with considerations which are not presented in the history of any other race. When these facts are clearly understood or recognized, certain difficulties which now beset the antiquarian will be done away with, and the investigation freed from so much unnecessary encumbrance.

How Long Were They Here?—That the Mound Builders occupied their principal seats in the Ohio and Mississippi Valleys for a long time there is abundant proof. On the Ohio and its tributaries these settlements were very numerous and populous. From the Ohio they spread in all directions. Time must be allowed for this increase of population, the spread elsewhere, and the development of their civilization. Each settlement must have been old and populous before a new colony was sent forth. The construction of these stupendous works must have been a growth—one made by the toil of years. Each settlement experienced the same labor and the same growth. They must have dwelt here a long time before they discovered the copper of Lake Superior. How long after its discovery before they became acquainted with its value no one can tell. For a great length of time they worked these mines. The progress of their work in these mines must have

*Discussed in "Mastodon, Mammoth and Man."

been very slow. These mines cover the entire region, even where the white man has not yet begun to operate. The time occupied, then, can only be left to conjecture. Probably thousands of years elapsed from the time they entered the valley until they took their departure, and other thousands to the present.

Origin.—The origin of this race, like others of antiquity, is, and must be, enveloped in impenetrable mystery.

CHAPTER XII.

WHO WERE THE MOUND BUILDERS, AND WHAT BECAME OF THEM?

An Interesting Question—Different Nations—Lost Tribes of Israel—Works on Lake Erie—Mounds of Wisconsin—Of Georgia—West of the Mississippi—of Illinois—Crania—Skull from Chillicothe — Various Opinions — Of Morton, Nott, Wilson, Warren, and Foster—Characteristics of American Crania—Expulsion—Disease—At the South—What Became of Them—Immigration—Toltecs—Founders of Mexican Civilization.

The investigation of the question relating to the Mound Builders as a race is a very interesting one. It is of great importance to the ethnologist. There is a great diversity of views upon this subject, and much learned discussion has been the result. It will be the object here to give the most plausible view, and not attempt the refutation of certain theories which have been maintained and elucidated. To follow all the vagaries which have been put forth would be a task not necessary to perform.*

*There has been a vast amount of discussion relative to the ten lost tribes of Israel. The literature upon this subject is extensive and somewhat amusing as well as absurd. Some have thought they were the Mound Builders, and others have contended they were the ancestors of the Indians There is no evidence that the ten tribes were lost. It is probable that some of the Israelites were absorbed by or amalgamated with the people of Media and Assyria, while others were scattered abroad. According to the New Testament, the twelve tribes were in existence at the time of the Apostles, for James (chap. 1. v. 1) speaks of "the twelve tribes which are scattered abroad." The Jews early settled in all the commercial and manufacturing cities of Syria, Egypt, and other parts of the sea-coasts of Africa, Asia Minor, Greece and Italy.

Different Nations.—There is one thing that impresses itself upon the mind of the investigator, viz: that owing to the manner in which they lived, the extent of territory occupied, and the diversity of the works, there could not have been a central government, but there must have been separate, although cognate, nations. A map of the State of Ohio containing the earth-works would indicate three distinct things. 1st. A belt of country running through central Ohio from east to west, entirely devoid of ancient earth-works. 2d. South of this belt are numerous military and religious enclosures. 3d. North of the belt numerous military but no sacred enclosures. These works are not so formidable as those of southern Ohio. The soil of central Ohio is productive, and hence there must have been some very strong reason for not occupying it. Again, if the same nation occupied northern Ohio that occupied the southern part, we would certainly meet with sacred enclosures. It appears that there were in the State two distinct nations, having different sympathies, and on account of the disparity existing between them they placed themselves wide apart, being separated by the belt of neutral territory.

If the mounds of Wisconsin belong to the same era as the mounds of Ohio, we have another distinct nation. The animal mounds of Wisconsin are very numerous, while in Ohio the animal mounds probably do not number half a dozen, and the greatest of all these is entirely separated from any of the enclosures. If the sympathies of these nations were the same it would appear that vast numbers of this class of mounds should be found in Ohio.

Two bird mounds made of stone occur in Putnam County, Georgia. With these exceptions, together with the three or four in Ohio, the effigy mounds belong to one locality, and to a people who had not the characteristics of contemporary nations. The occurrence of these mounds in other States may have been caused by an irruption of the Wisconsin nations into the States farther south. Or possibly the desire to imitate, which was so

characteristic of the Ohio Mound Builders, was the cause of these anomalous structures.

The mounds west of the Mississippi are entirely unlike those of the Ohio Valley. In southeastern Missouri and eastern Arkansas are found the sites of ancient towns and cities. These towns or cities are indicated by a series of little square-shaped mounds from one to two feet in height, all ranged in straight lines in two directions so that every dwelling stood upon a street. These mounds were originally mud dwellings, or else made out of sun-dried brick. This is proven from the fact that whenever opened there are found wood ashes and charcoal, broken pottery, flint arrow-heads, and stone axes.

Hon. William McAdams, in his "Antiquities of Jersey County, Illinois," states that he has met with a certain class of mounds which "are generally situated about the borders of prairie lands, near some spring or water course. They occur in groups of two or three to thirty or more, and are from two to six feet in height, round or oval in shape, and fifteen to twenty feet in diameter. Some are forty to fifty feet long. In several of the groups the mounds are arranged in a circular manner. If a group is on a hillside or declivity, the larger mound will occupy the commanding position on the upper side. Other groups have apparently no design in their arrangement, and are irregular, or form a line on the bank of the creek or top of some ridge. These mounds are most numerous of any in the county. Although I have made large excavations in them, and digged trenches entirely through them, I have met with nothing but ashes, charcoal and pieces of animal and fishes' bones, with shells of the *Unio* of the adjacent streams." Mr. McAdams concludes that these mounds were "house mounds," and were made by placing strong poles in a circular form with one end in the ground and the upper ends inclined and fastened together, and the whole covered with earth or sod.

The investigator fails to discover mounds of this class in Ohio, although occasionally one such might be dis-

covered. It may be that the Illinois mounds, together with those of Missouri and Arkansas, belong to a much later age.

Crania.—Craniologists have examined the skulls of the Mound Builders in order to assign them to their proper family among the types of mankind. Instead of arriving at definite conclusions, there has been a diversity of opinion. As an illustration of this we may take the skull discovered by Squier and Davis which has been so often commented on. This skull was taken from a mound near Chillicothe. The mound is composed of a tough, yellow clay, which at a depth of three feet is intermixed with large, rough stones. Beneath these stones is a deposit of burned earth about two feet in thickness. Within the center of this burned earth was found the skull. It was submitted to Dr. Morton, the eminent craniologist, for examination, who declared that its characteristic features resembled the Toltecan. Nott and Gliddon* state that it is "exceedingly characteristic of our American races, although more particularly of the Toltecan." According to both Drs. Morton and Nott, the peculiarities of this skull consist in the "forehead, low, narrow and receding; flattened occiput; a perpendicular line drawn through the external meatus of the ear divides the brain into two unequal parts, of which the posterior is much the smaller. . . . . Viewed from above, the anterior part of the brain is narrow, and the posterior and middle portion, over the organs of caution, secretiveness, destructiveness, etc., very broad, thus lending much support to phrenology: vertex prominent."†

Dr. Wilson‡ does not agree with the conclusions of Dr. Morton, for he remarks: "Tried by his (Morton's), own definitions and illustrations, the Scioto Mound skull essentially differs from the American typical cranium in some of its most characteristic features. Instead of the low, receding, unarched forehead we have

*"Types of Mankind," p. 291.

†*Ibid.*

‡"Pre-Historic Man," p. 435.

here a finely-arched frontal bone, with corresponding breadth of forehead. The conical or wedge-shaped vertex is, in like manner, replaced by a well-rounded arch, curving equally throughout; and with the exception of the flattened occiput, due, as I believe, to artificial, though probably undesigned compression in infancy, the cranium is a uniformly proportioned example of an extreme brachycephalic skull."

Dr. John C. Warren pronounced the Mound and Peruvian crania to be alike. This would essentially agree with Morton, for the Peruvian is a fair sample of the Toltecan type.

Dr. Foster* abruptly dismisses this skull by stating that "any comparative anatomist will instantly recognize it as of the Indian type."

Undoubtedly Mr. Foster desires us to infer that the skull is that of an Indian. In speaking of the general type of American crania, the Indian and all other varieties of mankind, found on this continent prior to the advent of the white man, are included. "The anatomical characters of the American crania are, small size, averaging but seventy-nine cubic inches internal capacity; low, receding forehead; short antero-posterior diameter; great inter-parietal diameter; flattened occiput; prominent vertex; high cheek-bones; ponderous and somewhat prominent jaws."†

Mr. Foster describes what he believes to have been the true Mound Builder type, and for examples takes three skulls, one of which was found in Illinois, one in Indiana, and the other in Iowa. He regards the one found at Merom, Indiana, as representing the distinctive characters of the Mound Builders. "In its general outlines the observer is struck by the scantiness of brain capacity, seen in the narrow forehead, the receding frontal bone, and a similar recession in the region of the lambdoidal suture which give to the vertex an undue prominence, and to the longitudinal arc an outline approaching in form a Gothic arch. . . . . The

*"Pre-Historic Races," p. 291

†"Types of Mankind," p. 441.

skulls which I have described possess peculiarities which ally them more nearly with the Mongolian race than with the Negro or European. . . . . The Mound Builders, assuming these skulls to be typical, were doubtless neither eminent for great virtues nor great vices, but were a mild, inoffensive race, who would fall an easy prey to a crafty and cruel foe."*

It would appear that Dr. Foster has examined skulls distinct from those of the true Mound Builders. They may represent a contemporaneous race, and in that case, it would establish different types of mankind living upon this continent at the same time.

Other Evidences.—Aside from the science of craniology, a strong showing may be adduced from a consideration of the temple mounds. Their development from north to south gradually passes over to the higher structures of Mexico, and bears a striking resemblance to the Mexican Teocallis, which early suggested the name "temple," by which they are almost universally designated.

The ancient Mexicans and Mayas were much given to serpent worship, or at least the serpent was a common symbol in their religious rites. What relation the great serpent mound of Adams County, Ohio, has to the symbolism of the Mexicans and Central Americans may, of itself, have no significance, but when considered with other phases, it must be a very strong link in the chain of evidence.

At this juncture, it should be noted that the American family is represented by all types of civilization, from the wild, or savage tribes to that people who constructed the wonderful houses and temples of stone in Yucatan and Chiapas. The ruins of the temple at Palenque must ever remain as one of the wonders of the world. If the ancient Mayas had not passed the semi-barbarous state, they certainly were encroaching upon the dividing line.

The wild tribes did not erect the squares and temples

at Marietta, Ohio, nor the squares, circles, octagons, parallelograms, parallel lines of walls, etc., so characteristic of the mound-building race. The North American Indian has no habits of progressive industry. He is restless, revengeful, fond of war, and reactionary. There is not one scintilla of evidence that the Indians built these mounds. Their own testimony is against it. To say the least, they were incapable of the task.

Indian traditions, like all others, cannot be relied on. In them there may be germs of truth, but not sufficient to be relied on as historic evidence. There is a tradition that, many centuries ago, the Lenni-Lenape swept in a flood of migration from the far West, but on reaching the valleys east of the Mississippi, they were confronted by a well-intrenched people possessing a mighty civilization. These people they denominated the Allegewi. The progress of the Lenni-Lenape was arrested, and they were driven back, but not discouraged. At the same time, the Iroquois were trying to effect a passage in a more northerly direction. The two migratory people now entered into a military league, and proclaimed a war of extermination against the Allegewi. The strongholds of the latter were reduced, the lands desolated, and the people forced to become wanderers upon the shores of the streams they had attempted to defend. Another tradition affirms that the primitive inhabitants of Kentucky perished in a war of extermination waged against them by the Indians, and that the last great battle was fought at the falls of the Ohio, where the remnant was driven upon a small island below the rapids and "the whole of them cut to pieces." The Indian chief, Tobacco, informed General George Rogers Clark of a tradition in which it was stated that there was a battle at Sandy Island, that decided the fall of the ancient inhabitants. The Indian Chief, Cornplanter, affirmed that Ohio, Kentucky, and Tennessee

had once been inhabited by a white people, who were familiar with arts of which the Indians knew nothing, and that, after a series of battles with the Indians, they were exterminated. He also declared that the old burial-places were the graves of an unknown people; that the old forts had not been built by the Indians, but belonged to "a very long ago" people, who were of a white complexion, and skilled in the arts.

It is possible that the Indians had such traditions. It is also possible that the tradition was formed to suit the occasion. These ancient remains had awakened great interest in the minds of the early explorers, and the Indians, desiring to give such answers as would suit the interlocutor, devised a satisfactory answer. Admitting the genuineness of the traditions, but little can be extracted therefrom. The Indians were almost constantly on the war-path, and were of a more or less migratory nature, and it is not improbable that they engaged in some struggles that made a lasting impression on their minds.

The Indians did have a superstition relative to Kentucky. One Indian expressed great astonishment that white people could live in a country which had been the scene of such conflicts as had there taken place. An old Sac, in 1800, said that Kentucky was filled with ghosts of its slaughtered inhabitants, and wondered why the white man could make it his home.

That these early people were affirmed to be white would only indicate that their complexion was lighter than that of the narrator. While it is generally known that Kentucky was the battleground between the northern and southern Indians, yet the great fact is overlooked by the repeaters of these traditions that the strongest military works are north of the Ohio, showing that was a line of the most obstinate defence.

In this investigation it is possible that a thorough study of the human faces carved on the pipes or represented on the pottery may throw some light upon the subject.

Expulsion.—It requires no profound observation in order to understand what became of this people—north of the Ohio. Every indication shows that they were expelled from this territory by force. When they were harassed by the inroads of the warlike bands of a foreign race, they erected their strong fortifications, for retreats during the predatory raids. On the hills they erected the mounds for posts of observation, and when a war party came down upon them, the fires were kindled, and the people thereby warned sought their shelters of refuge.

There is no proof that the people were assailed at every settlement. The sacred enclosures at Marietta were not protected by military works. Such evidence as we have, judging from the remains alone, indicate that the invasion was from the north, and the people, step by step, retreated southward. And yet the Indians have no traditions of violence with a primitive people in the valleys of the rivers of Southern Ohio, unless that of Lenni-Lenape be so construed.

The mounds of observation tell the direction the enemy came from. Along both Miami Rivers are small mounds on the projecting highlands, and a series of them along the Scioto, across Ross County, and extending down into Pike and Pickaway Counties. Mounds are so placed that in a few minutes intelligence of an invasion could be flashed from Delaware County to Portsmouth.

The invaders came from the North and assaulted the various settlements along the different rivers. The belt of country between the northern and southern works of Ohio probably remained a dense forest, and through it

*"Pre-Historic Races," p. 295.

came the warlike bands. In order to warn the settlements, when such a band should approach, it was found necessary to have these signal stations. Judging by the primitive methods employed these wars must have continued for ages. If the settlements along the two Miamis and Scioto were overrun at the same time before they had become weakened, it would have required such an army as only a civilized or semi-civilized nation could send into the field. It is plausible to assume that a predatory warfare was carried on at first, and on account of this the many fortifications were gradually built. During a warfare such as this, the regular parties of miners would go to the mines, for the roads could be kept open, even should an enemy cross the well-beaten paths. Communication with Lake Superior would be hard to cut off by any nation, however populous they might be at the north. Nor is it to be presumed that the warfare was continuous until the final expulsion.

However long the war may have continued it is evident that the final overthrow or expulsion of the Mound Builders was sudden and complete. It was so sudden that the mines of Lake Superior were abandoned in such haste as to cause them to leave their implements behind. On the temple mounds were probably scenes of carnage. They never would submit to give up these places without first offering the most stubborn resistance. Those mounds were covered with multitudes of brave and self-sacrificing men, who shed their blood in defense of their home and religion. The grim visage of war, with its relentless fury, burst upon them, carrying death and destruction in its course. At last this peaceable and quiet people were expelled from the Ohio, and never after returned.

It is true we do not find the implements left on the field of battle, nor the remains of the devastating fires. Occasionally implements are plowed up, either within or close to the fortifications. It must be remembered that to these places both the conquerors and Indians had access, and the implements left by the former were taken up and scattered by the latter. The time has been so

great since these devastations as to remove many of the traces of war.

It is not to be supposed that the Mound Builders never crossed the Ohio until their expulsion. We have already seen that mica mining and an extensive commerce were carried on with the people in the South. It is probable that the Mound Builders early crossed the Ohio, and there founded settlements, many centuries before their overthrow. It is probable that the settlements in the South were very extensive at this time, and during the wars in the valleys of the Ohio and its tributaries they felt that the strongholds must be held for the double purpose of protecting their original seat, as well as to check the further advance of the enemy.

This overthrow was not accelerated by a deterioration of the race. It is true that disease crept in among them. We have evidence that they were occasionally afflicted with a loathsome disease. A skeleton bearing evidence of this fact was exhumed near Alexandersville, Ohio. That this skeleton belonged to the Mound Builders is evident from the fact that it was buried beneath the original surface in a stratum composed of ashes, charcoal and soil. Over this was a cover of clay and ashes one foot in thickness. Upon this was heaped the mound of clay, six feet in height by forty feet in diameter at the base. There were two skeletons, one a male and the other belonging to a female. Both of these skeletons I have seen and examined. The crest of the ilium of both *os innominata* and the femora of the male were strongly marked by nodes. This disease continued its ravages after the Mound Builders had crossed into Tennessee, as we learn from Dr. Joseph Jones' "Antiquities of Tennessee."*

Disease will weaken or deteriorate a race. But it must take vital hold upon the people, and consequently become general. Such was not the case with the Mound Builders. At the time of their expulsion they were in the height of their power. They were engaged in con-

*Published by Smithsonian Institution, see pp. 65-73.

structing other works, and attempting to strengthen their civilization.

Having been forced to abandon the valley of the Ohio, they strengthened their position in the Southern States. Their enemy did not pursue them any farther than the banks of the Ohio. But as a precaution, or as a protection against other enemies, forts were erected in the South, but not such formidable ones as occur in Ohio. They were not now surrounded by such hardships, and instead of defending their homes they were allowed to build their great mounds, which in architectural wonder surpass those at the North. Here in peace and plenty they must have continued down to a comparatively recent period.

What Became of Them?—It has already been stated that the type of the skull, according to certain craniologists, belonged to the Toltecan family. If this be true, then the fact would be established that the Mound Builders were the original Toltecan race. The Toltecs at an early date settled in Mexico. Before their arrival Mexico was possessed by an ancient native civilization; and among the races were the Olmecs, the Otomi, the Totonacks on the eastern terraces of the Cordilleras, the Mixtecs on the coast of the Pacific, the Tarasks in the greater part of Michoacan, and the Zapotecs in Oaxaca.

From time immemorial there has been immigration into Mexico from the north. One type after another has followed. In some cases different branches of the same family have successively followed one another. Before the Christian Era the Nahoa immigration from the north made its appearance. They were the founders of the stone works in northern Mexico. Certain eminent scientists have held that the Nahoas belonged to the race that made the mounds of the Ohio and Mississippi Valleys. Following this people came the Toltecs, and with them light begins to dawn upon ancient Mexican migration. They were cultivated, and constituted a branch of the Nahoa family. There is a difference of opinion as to the time when the Toltecs entered Mexico. Some argue

the date of their appearance in Mexico to have been A. D. 648. Clavigero carries it back to the year 596. Other writers appear to make the Nahoas and Toltecs the same, and date the time back to 955 B. C. The Toltec monarchy came to an end A. D. 1018, on account of famine, pestilence and war. The remnant took refuge in Guatemala and Nicaragua. A century later the barbarous Chichimecs took possession of the deserted land. Scarcely had the Chichimecs taken possession when the Aztec (a race speaking the same tongue as the Toltecs, and one branch of that family), immigration poured in from the north, and gradually overran the country, where their descendants still remain.

But little can be gleaned relating to the Toltecs, on account of their written records having perished. But through the nations which succeeded them, we learn that they were well instructed in agriculture; understood most of the useful mechanic arts; were fine workers of metals, and engaged in many enterprises. They were the founders of that civilization which distinguished itself in later times. The noble ruins of religious and other edifices still remaining owe their origin to this race.

It would be impossible to tell whether the Mound Builders were the original Nahoas, and as such immigrated into Mexico, or the Toltecs, and as such came later. Whichever may be true, still it appears to be certain that the Mound Builders did immigrate into Mexico. This is proven from the fact that the farther south we go we discover a gradual improvement in their structures, which finally develop into the higher architecture of Mexico.

If the Mound Builders had come from Mexio, then their structures would have remained the same, or else they would have passed into a higher architecture as they proceeded north.

In the light of modern discovery and scientifio investigation we are able to follow the Mound Builders. We first found them in Ohio engaged in tilling the

soil and developing a civilization peculiar to themselves. Driven from their homes they sought an asylum in the South, and from there they wandered into Mexico, where we begin to learn something more definite concerning them.

Archaeology of Butler County.

I. General Description.

Butler County is situated in southwestern Ohio, being bounded on the north by Preble and Montgomery Counties, on the east by Warren, on the south by Hamilton, and on the west it extends to the Indiana line. In form the county is irregular, and contains two hundred and ninety-one thousand and fifty-five acres. The Great Miami River runs through the county in a southwesterly direction, dividing it into two unequal divisions, the larger part lying west of the river. The county is well drained by many creeks or small streams which empty into the Miami. On the east of the river there are no streams of any note, while on the west the principal tributaries are five, Elk, Seven Mile, Four Mile, Indian and Paddy's Run, all of which flow in a southeasterly direction. The Miami River, for the most part, has a broad valley, composed of a rich alluvial soil. The creeks for untold centuries have been cutting their beds lower and lower until some of them have plowed out their valleys in places to a depth of from one hundred and fifty to two hundred feet.

The geology of the county is Lower Silurian representing that period known as the Hudson River epoch, with the exception of a very small area in the northeastern corner of Oxford township, which belongs to the Clinton limestone. Some of the streams run over rocky

or stony beds, while others flow over heavy alluvial deposits, thus concealing the original rock. The valleys of most of the creeks and the stone quarries are rich in the fossils belonging to this particular formation.

When the country was discovered by the white man this county was densely covered with fine forest trees. The early settlers noticed the remains of what purported to be fortifications, covered with the same kind of trees, and of the same size that grew in the immediate vicinity of these earth-works. For diagrams and surveys of most of these works the antiquarian owes a debt of gratitude to James McBride and John W. Erwin. These two gentlemen took a deep interest in these ancient remains, and commenced surveying and making plans of them as early as 1832. Every earth-work that came to their knowledge was searched out and surveyed. They saw the works undefaced by the plow, and through briars and thorns they carried their chains and mathematical instruments that their forms or dimensions might be accurately known ere they were leveled or obliterated by the hand of progress. Most of these surveys were published by the Smithsonian Institution in 1848, in the first volume of its "Contributions to Knowledge."

Butler County may truthfully be said to be one of the most interesting spots on the continent so far as its archæological remains are concerned. With the exception of Ross County it contains more ancient earth-works or enclosures than any other county in the State. Some other counties have more extensive enclosures, and perhaps more interesting, but do not present a greater variety, or a more complete system of protection.

In selecting this county for a seat they showed the same general foresight which they so frequently displayed in other things. The soil is very fertile, and there are but few spots but may be cultivated. The hill lands for the most part produce exceedingly well, but are not so rich as the valleys formed by the Miami and its tributaries. That a fair conception of the natural wealth of the county may be formed, the following statistics may be given. The total valuation of the county for the year

1878, and upon which taxes were paid, was thirty-three millions forty-four thousand eight hundred and one dollars. The land alone was valued at seventeen millions two hundred and fourteen thousand seven hundred and fourteen dollars. According to the "Ohio Statistics for 1878," the following table will give some of the products of the county for the year 1877:

WHEAT.		RYE.		BUCKWHEAT.	
Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.
33,900	525,889	831	8,967	250	4,951
OATS.		BARLEY.		CORN.	
Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.
9,037	238,088	15,852	484,724	75,749	3,273,070
POTATOES.				TOBACCO.	
Acres.	Bushels.			Acres.	Pounds.
1,778	154,375			285	284,849

This includes the whole county, taking superior, good and indifferent lands. As has already been observed corn, potatoes and tobacco were the principal products raised by the Mound Builders.

Within the borders of this county they erected seventeen enclosures, eight of them within five miles of the city of Hamilton. About one mile south of the county line, and in Hamilton County, on the east bank of the Miami River, is an earth-work known as the "Colerain Works," enclosing an area of ninety-five acres. Six of the Butler County works are classed, by Squier and Davis, under the head of defensive works, and six assigned to sacred enclosures.

These works are all protected by a perfect system of signal stations. Upon one of the highest hills in Madison Township stands the largest mound in the county. From it a fire on the Miamisburg mound could be readily seen. The watchman then lighting his fire could warn the watchmen on the other towers almost instantly.

The following system of signaling is clearly defined: A fire on the great mound in Madison Township can be seen from the circular works on section fourteen, Wayne Township, and the works on section sixteen, Fairfield

Township. From the mounds on sections nine and sixteen of St. Clair Township, which overlook the two enclosures near Seven Mile, the same fire could be seen. To protect the work near Somerville the station on section nine of above township would suffice, but an addition is made by erecting a mound on section one of Milford which overlooks the works. The fire on the mound could also be seen from the mound on section thirty-one, St. Clair. These fires would light up the whole valley, and with the addition of lights on other mounds on the highlands the whole county would be alarmed. There is a system of mounds connecting the works in Union with that at Madison, and the same is true of those in Reily and Oxford Townships.

The Indians have left their traces in the county. On the west side of Indian Creek and following its curves is an old Indian trail. On the farm of Colonel Griffen Halstead, in section thirty, Ross Township, was an Indian village. In the same township on section twenty-three was a favorite camping ground. Indian graves have been noticed along Indian Creek, in Reily Township, in St. Clair, along the Miami River, along Seven Mile Creek in both Wayne and Milford. In conjunction with these remains have been found beads and other trinkets possessed by the aborigines. It has been claimed that the skeletons of dwarf men have been found on the west bank of the Great Miami, north of Middletown, not far from Poast Town. Since the account of the graves of pigmies in Tennessee has been exploded, it is well to receive all such accounts with caution. Haywood, in his "Natural and Aboriginal History of Tennessee," devotes an entire section to the consideration of "*the ancient pigmies.*" Their skeletons were found near Sparta, in White County—the graves being only two feet in length, fourteen inches broad and sixteen inches deep. Upon careful examination by Dr. Joseph Jones and other competent authorities, these skeletons turned out to be those of children, instead of pigmies. While I have not seen any of the bones from

near Poast Town, yet I venture the opinion that the bones supposed to belong to "dwarf men," in reality are those of children.

II. IMPLEMENTS.

Scattered all over this county are implements belonging to both the Mound Builders and Indians. When these relics are found on the surface it is impossible to tell which race they belonged to. That the Indians lost many of their implements in the chase, we know to be true. That the Mound Builders did the same is undoubtedly true. That the Indians appropriated the implements of a former race is a confession made by themselves. Some of these different implements have been engraved especially for this work. All here given are reduced to one-half their diameter—that is the representations are just half as long and half as wide as the originals. Unless otherwise mentioned, all came from Butler County. It will not be necessary to describe the different kinds of implements found, for this part of the subject has already been discussed in chapter five. Let it suffice that the same kind of implements have been found in this county that have been picked up in other counties of the State.

Fig. 26 illustrates thirteen varieties of arrow-heads, which are frequently met with. Number 1 represents a carefully-chipped arrow with deep notches, in order to secure it permanently to the shaft. Number 2 is found in both Europe and America. It is not as common as many other varieties. It may be called diamond-shaped, although it belongs to the lozenged-shaped pattern. The angles are so chipped as to serve as barbs. Number 3 is rather unique. The stem is sufficiently wrought to secure it to the shaft. Number 4 is one of the most common forms of stemmed points. It is most admirably adapted for an arrow-head; its sharp point, well-defined edges and deeply-notched base combine to render it secure to the shaft, and effective as a weapon. Closely approaching this is Number 5. Number 6 is from

FIG. 26—FLINT ARROW-HEADS—FROM AUTHOR'S CABINET.

FIG. 27—FLINT SPEAR-HEADS.—FROM AUTHOR'S CABINET.

Warren County, found on the farm of James McLane. The picture is not a fair representation, for the original is perfectly formed, having all its parts in exact proportion. It is a perfect specimen of the triangular form. Number 7 is peculiar in shape, and belongs to the same pattern as the first named. Number 8 is a representative example of the abundant form of stemmed points. Number 9 belongs to that class whose stem is bifurcated. Number 10 is a beautiful form of the stemmed pattern, having its barbs quite prominent. Number 11 is another variety of number 4, the main difference consisting in having the base concave. Number 12 is characterized by its prominent barbed-points. Number 13 was probably not intended for an arrow point. Blunt arrow-heads of this pattern are used by the Indian boys of Canada, when they are beginning to learn the use of the bow. But this implement has rather a sharp edge. It is probable that it was used as a scraper or knife, having a shaft attached to it.

FIG. 28.—RIMMERS.*

Five varieties of spear-heads are given in Fig. 27. All but one belong to the stemmed variety. Their shapes show that they were used for thrusting, and then remaining fast to the shaft when it was removed or with-

*In Author's Cabinet.

drawn from the object it had penetrated Number 3 is a very fine specimen of the serrated type Number 1 is an excellent representation of the barbed spear-head. Number 2 is a leaf-shaped rounded base lance-head.

We have two kinds of rimmers or drills given in Fig. 28. The points of both *a* and *b* are missing. The illustration marked *c* belongs to the same pattern as the arrow-head marked 2 in Fig. 26. It may have been used in a war club, thus making it a formidable weapon.

Fig. 29 shows the usual form of the knife. This one is double-edged, and usage has somewhat damaged it. It was used for skinning wild animals.

FIG. 29.—KNIFE.*

There is a certain class of implements which have been variously termed hatchets, battle-axes, war-club teeth, lance-heads, hoes, spades and shovels. One of them is

FIG. 30.—SPADE.

reproduced in Fig. 30. It is beautifully wrought,

*In Author's Cabinet.

showing that the workman had taken pains with it. It is composed of jasper, of a reddish color. Several of these have been recently found in the county.

Figs. 31 and 32 are polished implements, made out

FIG. 31.—ELONGATED HATCHET.*

FIG. 32.—HATCHET.

of fine compact greenstone. Both are destitute of the groove, and have been generally called "celts." These implements were probably used for various purposes, such as a supplementary tomahawk, a chisel, or a hatchet. When larger they were used as wedges or bark-peelers.

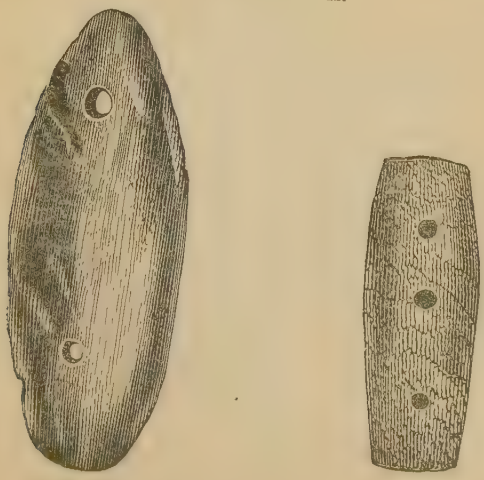
Three varieties of pendants are shown in Fig. 33. Of these (*a* c†*) two were probably worn in front, suspended by a string encircling the neck. They are

*In Author's Cabinet.

composed of green slate. The other (*b*) is composed of hematite, and may have been used as a plummet or net sinker.

a *b* *c*

FIG. 33.—PENDANTS.



a *b*

FIG. 34.—GORGETS.†

†In Author's Cabinet.

The implements called gorgets or gauges are no longer numerous in this county, although they are occasionally met with. Two of these are illustrated in Fig. 34.

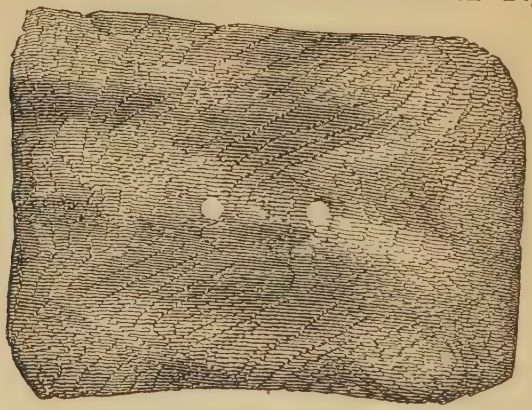


FIG. 35.—GORGET,*

They are made out of green slate. The one marked *b* is the only one I have ever seen with three perforations.

FIG. 36.—COPPER HATCHET.†

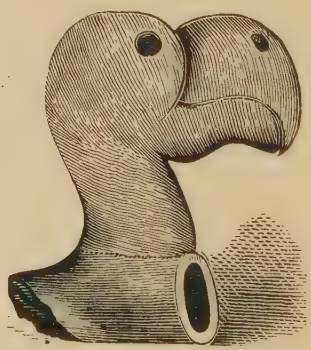


FIG. 37.—HEAD OF A BIRD.

Fig. 35 is a copper gorget, gauge, breast-plate, or

*In Cabinet of Geological and Archæological Society.
†In Author's Cabinet.

badge of authority taken from the east mound of the two in section nine, Fairfield Township.

About fifteen years ago Mr. Pliny Shaw, then a resident of Ross Township, plowed up, on his farm, seventeen copper hatchets, all from one locality. The spot was on low bottom ground bordering a stream known as Dry Run. Four of these hatchets are still in the family of Mr. John Powell, and one each in the cabinets of Messrs. Richard Brown, G. B. McKnight, and the author. One of these is shown in Fig. 36. The rest are probably scattered.

Fig. 37 belonged to the cabinet of James McBride. It was taken from a mound in this county, but what mound would now be difficult to discover. It is executed with much spirit, and represents the head of a bird, somewhat resembling the toucan. It appears to have been attached to some vessel, but had been broken off before being deposited in the mound.

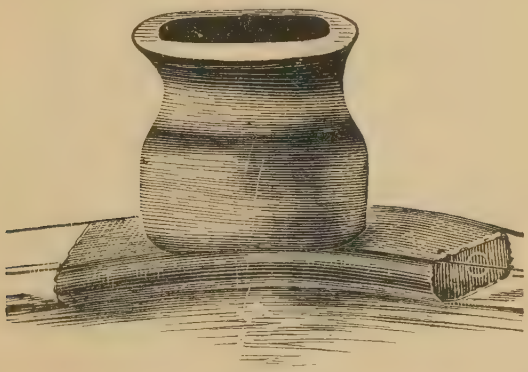


FIG. 38.—PIPE.*

Genuine Mound Builder pipes are rarely met with. Indian pipes are more frequently found. Fig. 38 represents a genuine Mound Builder pipe, made out of limestone and finely polished The bowl still remains perfect, but both ends of the stem or base are broken off.

*In Cabinet of Geological and Archæological Society.

Fig. 39 is called a weaver's shuttle. The perforation is not exactly in the center. Fig. 40 is a wand or

FIG. 39.—SHUTTLE

FIG. 40.—WAND.

badge of distinction. It is also perforated. Both have been carefully worked, and present a fine finish. They are made out of a fine-grained green slate.

It would be difficult to tell the use of Fig. 41. It is too large for a bead, and could hardly be considered a

FIG. 41.—TUBE.

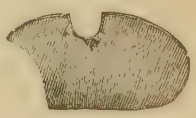


FIG. 42.—ORNAMENT.

badge of authority. It is composed of green slate with a hole running lengthwise through it. It would be classed under the general head of tubes.

We have a very peculiar and rare implement in Fig. 42. This is composed of serpentine, highly polished, and of singular form. It has every appearance of having been finished. Its use is unknown. Only a few have

been found, and this is the only one in the county, so far as my information extends.

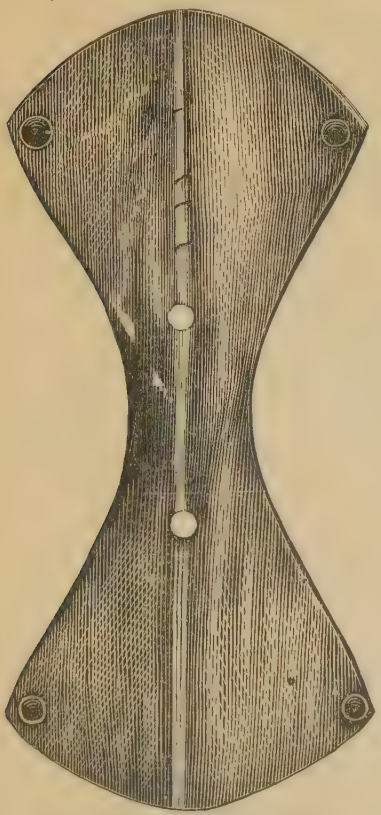


FIG. 43.--BADGE OF AUTHORITY.*

In Fig. 43 we certainly have a very rare implement. It was taken from a mound on the farm of Mr. William Brown by Mr. Richard Brown, situated on section thirty-three, Ross Township. It was found beneath the original surface of the ground, and is undoubtedly the work of a Mound Builder. It is composed of cannel-coal, is perfectly symmetrical and highly finished. At the corners of each of the four wings is a circular knob, giving the implement a fine appearance.

It is doubtful if our skilled workmen could make one of these badges more perfect than this.

The six implements in Fig. 44 we class under the general head of badges of authority, although it is very doubtful if all really belong there. All these implements evince great care, and prove that a skillful hand was employed. All are made out of green slate, *b*, *c*, *d*, and *f* being of that variety known as striped. The one marked *e* is composed of a very compact slate, of a darkish color. If our artist had shown as much skill in reducing these

*In Cabinet of Richard Brown.

FIG. 41.—BADGES OF AUTHORITY.—FROM AUTHOR'S CABINET

to wood as the original workmen have exhibited, we could present the reader with a much finer engraving. The figures *b* and *f* are called badges or wands or ceremonial stones. The former is composed of two wings with a perforation through the center. It is perfect with the exception of a notch on one of the wings. It is sometimes called a butter-fly, on account of its supposed resemblance to that insect. It was found in Madison Township. The other is broken and considerably notched. It was plowed up in Reily Township. It is probable that it has been damaged since its original owner lost it. We have a shuttle represented by *d*. It was found either in or else within the immediate vicinity of Hamilton. A tube is given in figure *c*. A curious implement is represented by *e*. Some have thought it was a cross, but the shoulders, for its size, are too massive. I have thought it might have been intended to represent a bird on the wing. It came from St. Clair Township. A rare implement is given in figure *a*. This was found on the east bank of Gander Run, in Clear Creek Township, Warren County. It has a round ball in the center, from which start out two arms. These arms or points were evidently intended to be of the same length. A flaw in the stone caused the workman to shorten one arm, and thus bring it to a point, not abruptly, but by a gradual taper. Several of these have been found in the State. Their use is unknown.

We have an excellent illustration of five varieties of badges in Fig. 45, composed of striped green slate. They were found in Liberty and Lemon Townships. In the upper right hand corner we have the butter-fly badge. Opposite it is a double crescent with the bore through the center. Some have maintained that the double crescent was used by the individual who ranked higher than the one who wore the single crescent. The double crescent, in the center of the picture, is supposed to have been worn by persons of the highest rank. However true this may be no one knows. Two other badges are given in the lower part of the picture.

These illustrations do not represent all the varieties

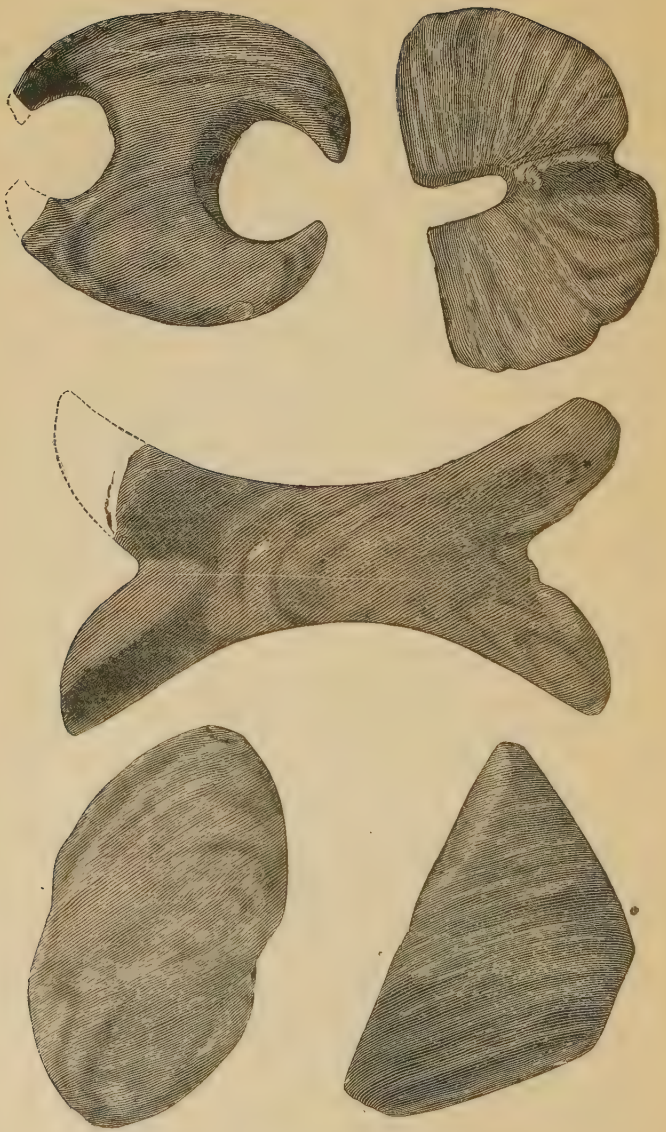


FIG. 45.—BADGES OF AUTHORITY.

which have been found, by any means. In treating of the earth-works it has been thought best to take up each township separately.

III. UNION TOWNSHIP.

[From a survey by W. H. Harr and J. P. MacLean.]

Union Township is situated in the southeastern corner of the county. The southeastern part of the township is rather rugged, and all the territory is rolling, with the exception of certain lands bordering on the east and west forks of Mill Creek. This level or low land has received the name of Cream Valley, owing to its fertility. For many years no special attention has been paid to the ancient structures of the township. These enclosures have been noted. The one of most importance is that located on section fourteen, on the farm of the heirs of D. S. Irwin, (marked A on the map). As shown in the engraving, it consists of a group of works. The main work is a rectangle two hundred and twenty feet long by

FIG. 46.—ANCIENT WORKS, UNION TOWNSHIP.*

one hundred and twenty feet broad, unaccompanied by a ditch. At the time of the survey, in 1842, the walls were about five feet high and on them were standing a red oak tree three and a half feet in diameter, and a white oak tree three feet in diameter. On visiting this work during the past spring, we found the north and east walls entirely obliterated. At the southwest angle the wall is quite prominent. The work had two gateways.

*From a survey by James McBride and John W. Erwin.

The one in the south wall we found to be twenty-seven feet wide. The work is situated on low ground in a level field, which has been cultivated for many years. It is entirely surrounded by hills, save at the southwest angle. A few rods distant from this angle, in an open field, is a mound five feet in height. Squier and Davis class this work among the sacred enclosures. There is nothing to indicate that it was used for that purpose, unless it be its regular form and its location on the bottom land. But its location at the confluence of two streams, and the hills being some distance removed, would equally indicate that it was used for other purposes. Twenty rods north of this work is a truncated mound ten feet high; and a short distance still farther north rises a steep bank, fifty feet in height. From this elevated ground a view of the country to the northeast and southwest may be obtained. Upon this plain was situated a small elliptical work, enclosing a mound, and near it were three other small mounds. Upon the brow of the bank, at *a* was a pile of burned limestone, the use of which was unknown to the early settlers. North of these works a distance of a quarter of a mile, in the woods, is a small mound on a projecting point of land.

On the adjoining section (eight), on the land of W. Schenck's heirs, is a circular work eighty feet in diameter, (marked B on the map.) It occurs on the elevated land, surrounded by forest trees, but none growing either within the enclosure or upon the walls. The work is incomplete, being composed of four mounds, three feet in height, corresponding with the cardinal points of the compass. Between the mounds the walls gradually taper until they meet midway. The ditch is on the inside. It is regular and of equal depth at all points. The mounds are composed of clay, and yet from the general appearance it would seem that the intention was to take the surface material from within the enclosure, and out of it make at least a portion of the wall. These mounds may represent the original height of the proposed wall. One thing should not escape our attention, and that is the ditch preserves the same proportion the whole distance.

It is no wider or deeper opposite the mounds than it is between them. Our engraving, (Fig. 47), does not give us a good representation of this work. The mounds

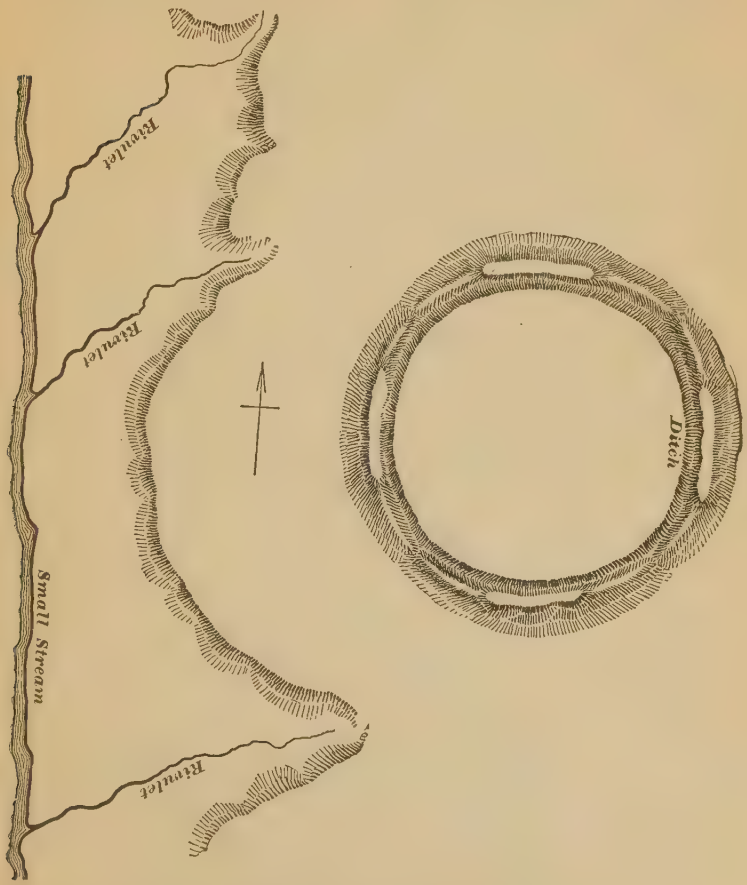


FIG. 47.—CIRCULAR WORK, UNION TOWNSHIP.*

should be more prominent, and the walls between them should be connected and much narrower. To give a more

*Surveyed by W. H. Harr and J. P. MacLean. Delineated by the latter.

correct illustration, another cut was made, but it (Fig. 48), does not represent what we want. This work is on the east side of the same stream, upon whose bank is located the work in Fig. 46, and distant from it about

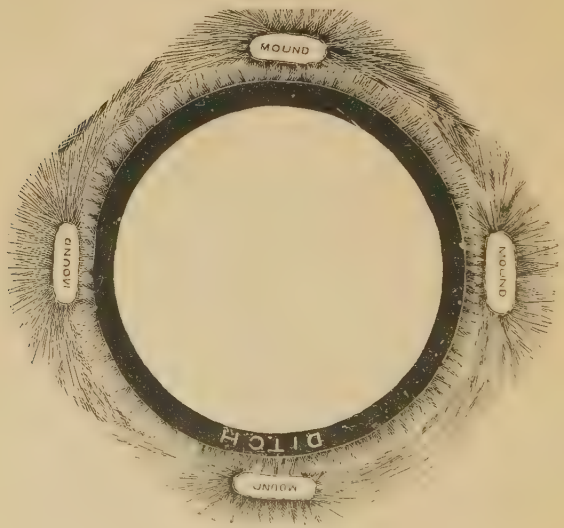


FIG. 48.—CIRCULAR WORK.

one mile. The small stream, into which the three rivulets flow, has cut its bed to a depth of about fifty feet at this point. The road which crosses it is both winding and steep.

About forty years ago John W. Erwin surveyed an earth-work located on the farm of James Beatty, in section nine, about one mile from Jones' Station. The diagram and notes were "borrowed" by E. G. Squier of James McBride, at the same time he obtained the other surveys. It is undoubtedly lost. Mr. Erwin is unable, at this date, to form a diagram of it. At the time of his survey the walls were plowed down, but not obliterated. On visiting the vicinity June 11th, 1879, I was unable to either discover it or find anyone that knew anything about it.

Besides those already noticed there are eight other mounds. The finest and most conspicuous of all is that on the farm of E. Riker, on section fourteen. It is in an open field near the turnpike leading from Pisgah to Sharonville. It rises almost abruptly to a height of eight feet, with a diameter at its base of eighty feet.

On the farm of Sylvester McLean, section seventeen, is a mound five feet in height by thirty-five feet in diameter at the base.

Section twenty-four contains three mounds. One is located on the farm of D. Williamson, and measures nine feet in height by seventy feet diameter at the base. One is located immediately on the line between the farm of D. Williamson and that of N. Gorsuch. It is ten feet high by seventy-four feet base. It is near the Cincinnati and Dayton turnpike, from which it is readily seen. The remaining one is on the farm of J. C. Phillips. It has a height of four feet by thirty-six feet diameter at the base. On the farm of J. Rose, in section thirty, near Gregory's Creek, is a mound whose dimensions we did not ascertain.

A mound is located on the farm of S. Howard, section twenty-six, and one on the farm of Joseph Allen, in section thirty-two, the dimensions of which were not ascertained.

There may be other mounds in the township, but these were all that came to our knowledge.

The mounds we personally examined have never been opened, with the exception of the north mound composing the circle in Fig. 47. This mound was systematically opened by an experienced hand (Alonzo Miller, of Mason,) but, as we were informed, it yielded nothing.

IV. LIBERTY TOWNSHIP.

[Surveyed by R. T. Shepherd.]

Liberty Township is located immediately north of Union. The land is elevated and rolling. The soil produces well and nearly all the farms are under a good state of cultivation. The marks of the glaciers are discernible in the clay banks which they deposited.

There are no ancient enclosures, and only seven mounds in the township.

On the farm of S. Rose, in section twenty, is a mound eight feet in height by ninety-eight feet in diameter at the base. In the same section, on the farm of the heirs of D. B. Williamson, is an oblong mound six feet high, with a diameter at the base of thirty-seven by sixty feet.

In section twenty-six, on the farms of Stephen Clawson and C. Bandle, are three mounds. The largest is thirteen feet high by seventy feet in diameter at the base, and by far the finest mound in the township. At present this mound is covered with underbrush, while on its top and nearly in the center is a large oak stump, and also one on the side. Immediately east, and joining this mound is another, and to the north a distance of one hundred and twenty feet is still another, their dimensions being four feet in height, by twenty-five in diameter at the base.

The other mounds are located on sections fifteen and thirty-four. The former is on the farm of E. J. Crane, and the other on the Shepherd farm. These mounds are small and injured by the plow.

The mounds in both Union and Liberty Townships, for the most part, form a connecting line between the two enclosures in Union and the fortification on section sixteen of Fairfield, or else communicate directly with the Miami River, in order to obtain a fair view of the great mound in Madison Township. The large mound on section fourteen overlooks (if the trees were cleared away), a portion of the works on the Irwin farm. Fires on the mounds in Liberty Township would be seen by the watchman on the largest mound in section twenty-four (Union), and from thence to section fourteen.

Numerous implements have from time to time been picked up in both townships. At one time a bushel of flint implements was plowed up in the old graveyard in the northeast corner of section fourteen—just across the stream from the circular work shown in Fig. 47.

V. FAIRFIELD TOWNSHIP.

[From the Surveys of James McBride and John W. Erwin.]

Fairfield Township is somewhat in the form of a triangle. It joins Union and Liberty on the east, on the

south is Hamilton County, and on the west and north it is separated from adjoining townships by the Miami River.

The eastern, northern and southern portions are mostly hill lands. The greater part is bottom land and very fertile. Perhaps as good land as may be found anywhere is in this township. Notwithstanding this

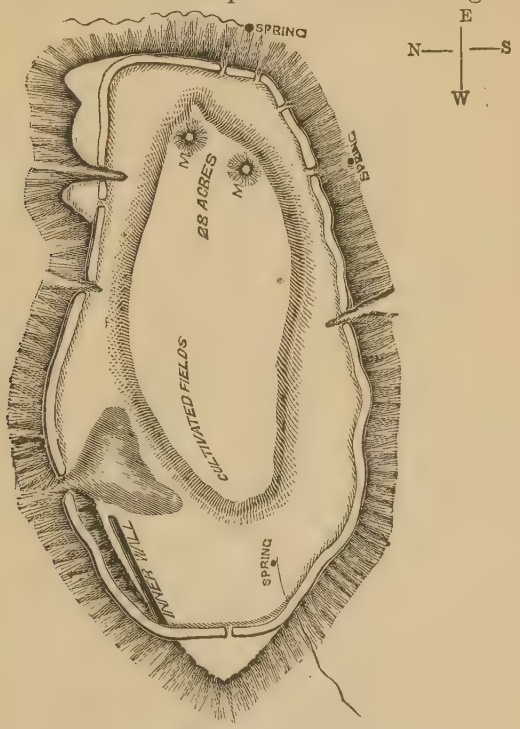


FIG. 49.—ANCIENT FORTIFICATION.

fact, many of the farms are in a dilapidated condition. About Symmes Corner there is a very fine farming district, and yet many of the farms show a want of enterprise on the part of the owners.

Four enclosures are located in this township, two of which are of a very interesting character.

The ancient fortification* (Fig. 49, marked C on the map) is situated on the farm of R. Hungerford, in section eight. It occupies the summit of a high detached hill that overlooks a large section of the Miami Valley. The hill rises one hundred and twenty feet above the valley, the north side being very abrupt, but the remaining sides comparatively easy of ascent. The wall is carried around the brow of the hill, and contains six gateways, two of which open on natural bastions. The enclosure contains twenty-eight acres, the ground gradually rising to the center. Near the eastern wall are two mounds on the highest point placed near together, and measuring respectively ten feet in height. When the original survey was made in 1840, the wall was four feet in height.

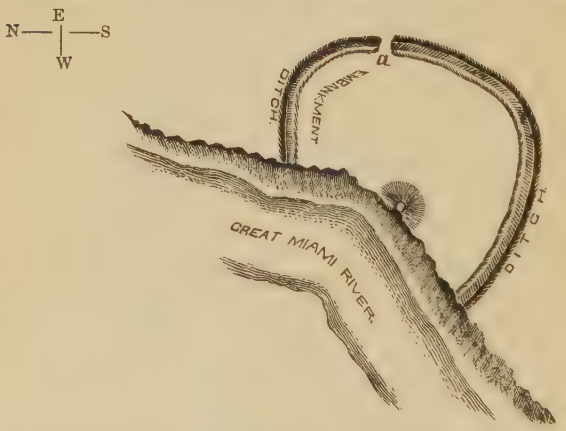


FIG. 50.—ANCIENT ENCLOSURE.*

Southeast of this work and nine hundred feet distant is a hill fifty feet still higher, although its area on top is small. Upon this hill have been observed traces of ancient occupation. As it is the highest point in the neighborhood, it would be plausible to infer that it was used for a watch tower.

The enclosure marked D on the map, situated on the farm of Mrs. R. Brant, has been partly destroyed by the

*From survey by James McBride and John W. Erwin.

encroachments of the river. At the time of the survey in 1840, the enclosure contained three and one-half acres. Before it was injured by the river it is supposed to have contained an area of five acres. It is composed of a ditch and a wall, the former being exterior to the latter. The wall was about three feet in height and the ditch two feet in depth. At the bank of the river the original depth of the ditch was seen to be five feet and eight inches. If the wall had subsided to an equal extent, its original height from the bottom of the trench must have been about twelve feet. Within the center of this enclosure was a mound. Our engraving (Fig. 50) represents a little more than half the mound. When the mound had been about one-half removed by the action of the river, it was examined by Mr. McBride. In his original notes he observes: "The mound was composed of rich surface mould, evidently scooped up from the surface; scattered through which were pebbles and some stones of considerable size, all of which had been burned. Upon excavation we found a skeleton with its head to the east, resting upon the original surface of the ground, immediately under the apex of the mound. Some distance above this was a layer of ashes of considerable extent, and about four inches thick. The skeleton was of ordinary size; the skull was crushed, and all the bones in extreme decay. Near the surface were other skeletons. The inhabitants of the neighborhood tell of a copper band with strange devices found around the brow of a skeleton in this mound; and also of a well-carved representation of a tortoise, of the same metal, twelve or fourteen inches in length, found with another skeleton."

At the present time a small portion of the mound remains, probably four feet in height. A road runs through the enclosure. The greater part of the remaining work is in a field and corn growing within it. The walls are plowed down, but can readily be traced, owing to the ditch, which is still visible, and the large amount of gravel which is seen to predominate. The walls between the road and the river are two or three feet

high. The river does not sweep along the bank, unless it is during high water, but appears to be receding.

Squier and Davis class this work among the sacred enclosures, although its curve is irregular. This classification is arbitrary. There is nothing in either its form or location to indicate its purpose. While it is overlooked by the surrounding hills, yet they are too far removed to afford vantage-ground to an enemy.

About a quarter of a mile below this work is an aboriginal cemetery, the graves being indicated by small regular elevations.

FIG. 51.—SACRED ENCLOSURE

The earth-work illustrated in Fig. 51 is almost entirely obliterated. It was surveyed in 1840 by James McBride. It was located on the farm of C. Hagerman, in section ten. On the map it is marked by the letter E. It occurred on the level bottom lands of the Miami, and at a distance from any high grounds. The work was in two

parts; the principal one, representing a square, although not exact, was composed of an embankment of earth four feet high by fifty feet base, and enclosing an area of thirteen acres. The walls were unaccompanied by a ditch. Two gateways were in the wall, and forming the western angle was a large oblong mound. A gateway opens from the principal work into a circle, the walls of which are heavier and accompanied by an interior ditch. From the circle an avenue, containing a small mound, leads to the bank of a small stream. At the time of the survey the larger portion of this work was situated in timbered land, and upon the walls were trees of the largest size, surrounded by the fallen and decayed trunks of their predecessors.

Near the southwestern angle of the enclosure in a grove are two mounds, placed one hundred and thirty-five feet apart. They are about eighty feet in diameter and fifteen feet high. The one to the east has been partly cut down, in order to utilize it for a sorghum mill. In scraping the top away the implement represented in Fig. 35 was found. These two mounds are on the farm of R. Cooper, in section nine.

One of the best preserved works in the county is that on the farm of John Seagardner, in section sixteen (marked F on the map) and shown in Fig. 52. The plan is taken from that made by James McBride and John W. Erwin, in 1840. The work lies between two small streams and its line of walls borders on the natural banks, and then closes across the narrow neck of land at the south. The bank of the western stream is steep, having a descent of sixty feet, thus making it difficult of ascent. The area enclosed is seventeen acres and consists of an upland and a lowland. The ground is elevated at the south, but comparatively low at the north, while the intervening bank is sloping. On the east the wall follows the curves of the stream, which has been encroached upon by the latter. The walls are low, ranging from three to four feet in height. The entrance on the south presents a very interesting feature, a supplementary

plan of which is given in the engraving. The ends of the wall curve inwardly, forming a true circle ninety-eight feet in diameter. Within the circle thus formed is another circle, with no opening, fifty-eight feet in diameter. The external gateway *e* is seventy-five feet in width, covering which is a mound five feet high and forty feet in diameter at the base. The internal gateway (*d*) is twenty feet

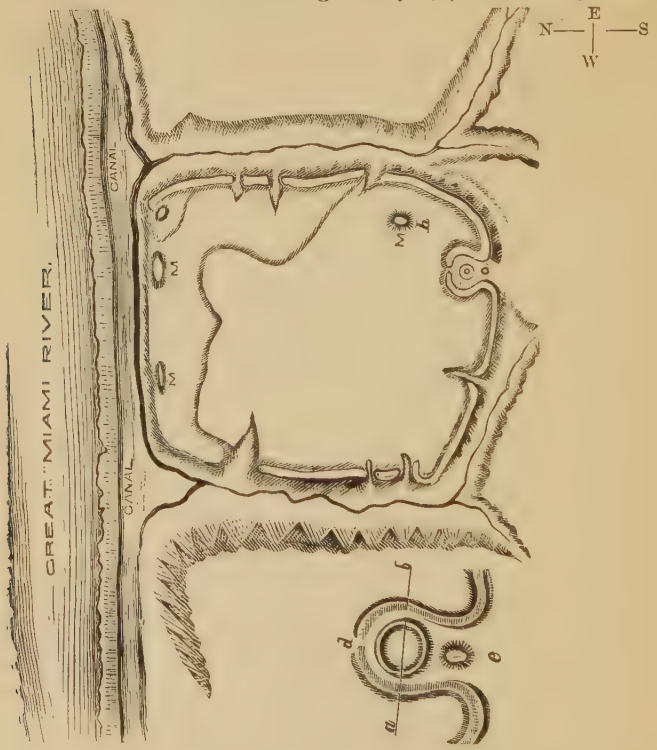


FIG. 52.—ANCIENT FORTIFICATION.

wide. The passage way between the mound and the embankment, and between the walls of the circles is about six feet wide. External to the southern walls is a small ditch which subsides into the ravines on either side.

Within the enclosure are three mounds. The one marked *h* is fifty-two feet in diameter and about four feet high. Bordering the bank of the Miami Canal is a low mound which has been opened. The mound that was at the northeastern corner has been removed.

These works remain undisturbed, with the exception of a treasure-seeker having dug into the circle, and the mound at the entrance defaced by a furnace used for making maple sugar. The upper or southern portion is still in timber, while the northern is used for pasture land. The general appearance of the work indicates it to have been used for a stronghold. If this is the case, then it would be necessary to fortify the bluff on the east. The stream here cuts a perpendicular bank on the east, while at the west the land descends with the stream. Thus the bluff is elevated above and immediately overlooks the northern part of the fort, and the embankment bordering the stream would afford no protection whatever. Otherwise the position is a strong one. Previous to the construction of the canal the terrace next the river had a perpendicular bank of fifty feet. Besides this, a fortification at or near this point appears to be necessary, for the valley beyond the river is broad and contains many traces of an ancient population, among them being two religious or sacred enclosures. Within this fortification have been found several human skeletons, and quite a variety of carved stone implements. These occurred on the highest ground at the point where the upland begins to recede towards the lower terrace.

There are but few mounds in the township, most of them having already been mentioned. On a promontory belonging to Thomas VanCleaf, in section twenty-one, overlooking the valley beyond, is a circular depression, out of which limestone has been taken. There is a tradition that a stone mound once stood on this spot. A few of the stone still remain. On the farm of R. Kennedy, same section, is a small earth-mound. On the land of John Pottenger, section three, are two small mounds which have been plowed over. On the north-

eastern corner of section ten is another whose dimensions are not determined.

A mound once stood in the northeastern part of what is now the city of Hamilton. In grading a street it was found necessary to remove it. In it were found several skeletons and quite a number of trinkets.

VI. ROSS TOWNSHIP.

[From the notes and survey of Richard Brown.]

This township is separated from Fairfield Township on the east by the Miami River, and a portion of St. Clair. On the south it joins Hamilton County; on the west it is bounded by Morgan Township, and on the north by Hanover. For the most part the township is rugged, and in certain localities the soil is thin. The sections on the south and east, with the exception of one and twelve, are comparatively level, ranging about seventy-five feet above the river. The greater part of the remaining sections range from one hundred and twenty to two hundred feet above the river. Indian Creek flows through the township in a southerly direction, over a bed of sand, clay and gravel, with here and there an outcropping of limestone. The same may also be said of Big Dry Run and Paddy's Run, save at their northern extremities, where the beds are composed almost entirely of limestone.

In the township are three important enclosures, all near the river, the largest of which is that situated on the farms of P. Bittener and J. L. Garver, section twelve and marked L on the map. The illustration (Fig. 53) is taken from a survey made in 1836 by James McBride. The hill upon which this work is located is the most elevated of any in the vicinity, and constitutes a spur, the summit of which is about two hundred and fifty feet high. It is a short distance from the river, and surrounded on all sides, save a narrow space at the north, by deep ravines. From the line of fortification the hill is sloping, but before reaching the bottom of the ravines it becomes steeper, and in places presenting almost inaccessible declivities. On the north the descent is inconsiderable, making it easy of access. The embankment, composed of a stiff clay mingled

with stone, and having a height of five feet by thirty-five feet base, skirting along the brow of the hill, and generally

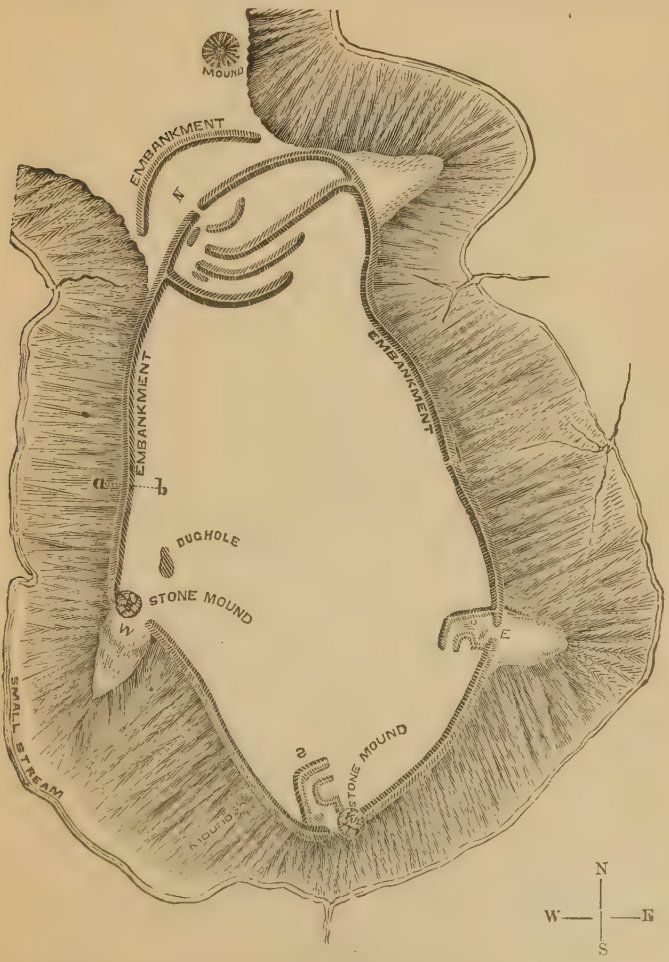


FIG. 53.—FORTIFIED HILL.

conforming to its outline, encloses an area of a little over sixteen acres, the interior of which gradually rises to the height of twenty-six feet above the base of the wall. It

has no accompanying ditch, the material composing the wall having probably been taken up from the surface or out of the dug-holes, which occur at various points within the wall. These dug-holes, or excavations, are uniformly near the gateways, some of which are sixty feet over, filled up with mud to a depth of about ten feet. The line of wall has four gateways, each twenty feet wide; one opening to the north, and the others towards the south. Three of these are completely covered with inner lines of embankment, the most intricate being that at the north, and marked N in the engraving. Beyond the gateway is a crescent wall extending almost entirely across the isthmus. Within the works are four more lines of wall, which not only protect the gateway, but at this point render the fortification impregnable against the assault of an enemy. The gateways E and S are of peculiar construction, belonging to that class known as Tlascalan. The former opens upon a parapet, and the other is partly defended by a stone mound. The gateway at W is partly covered by a stone mound, which, at the time of the survey, was eight feet high. At the present time, (1879), only a few stones remain, the rest having been hauled away. This gateway also opens upon a natural parapet.

The southern half of this work is still covered by forest trees, while the remainder is under cultivation. The walls are not yet plowed down, being still raised to a height of three or four feet. The western line of the wall has suffered more than any other part of the embankment, with the exception of that part covering the gateway.

Thirty rods north of gateway N is a mound composed of mingled earth and stone. This mound in 1836 was ten feet high, and a few years previous to that time it was partially excavated, and a quantity of stone taken out, all of which had undergone the action of fire. The mound is now about seven feet high, and occasionally is dug into, but the bottom has not yet been reached.

There is a mound a few rods distant from the embankment between S and W. It is finely rounded, being

about five feet in height. On account of the thick underbrush it had not been discovered until September, 1878, when it was noticed by Mr. R. Brown and myself. The outlines of the enclosure show the distinctive characters of this work. That it was constructed for purposes of defense is beyond all question. The position it occupies is naturally strong, and the artificial defenses exhibit a great degree of skill. Every avenue is strongly fortified. The principal approach is guarded by four walls, with the addition of two supplementary walls. Should an enemy carry the exterior crescent wall, and then successfully assault the gateway, they have yet to penetrate the fortress. They meet with a complex system of walls calculated to mislead and bewilder. These are also protected by sink-holes, which still add to the difficulty. Besides this the walls are so arranged that but very few would be able to pass between the lines at a time, where they must contest hand to hand with the defenders. These walls having been strengthened by palisades would give an advantage to the besieged, which would render still more difficult any plan of assault. Within these palisades may have been port-holes or other openings, which would allow the besieged to pour forth a destructive fire. As we know but little of the military system of this ancient people, the advantage given by this method or plan of defense may be much greater than we can understand.

On account of the natural declivity of the hill, the fort would be less liable to an assault at the other gateways. Yet should this be undertaken and the gateways carried, the assaulting party, necessarily limited in numbers to a few at a time, would be exposed, owing to the peculiar construction of the gateways, to a double cross fire.

On account of the complicated construction of this work, it may be safely inferred that it had been several times assaulted, and after each attack some part deemed insecure was strengthened.

The mounds were used as signal stations to warn the people of the approach of any enemy. If the burnt

stone be taken as a criterion, then these mounds often served the purpose for which they were erected.

A little over half a mile distant from this work is another enclosure, located on the farm of J. C. Andrews, in section thirteen. A plan of this work is given in Fig. 54, and on the map is marked by the letter M. This is one of the two works of Butler County possessing double walls. It differs from the other (marked K on the map) in having two instead of one ditch. The outer wall

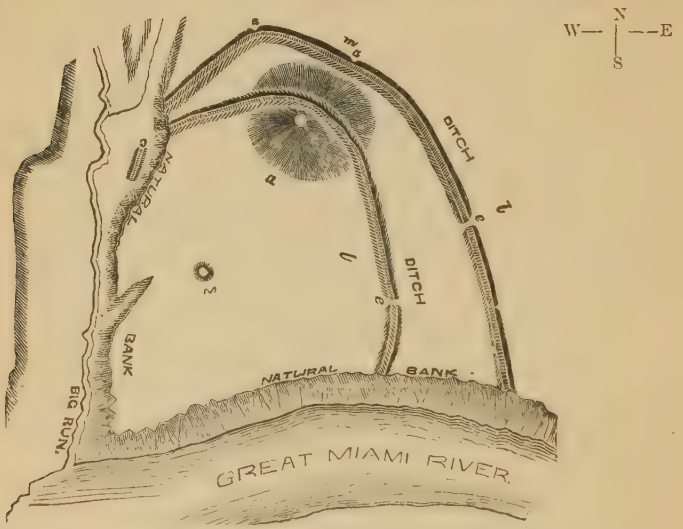


FIG. 54.—DOUBLE-WALLED ENCLOSURE.*

consists of a simple line of embankment, which in 1840 was five feet high, with an exterior ditch four feet deep. It is interrupted by a single gateway fifteen feet wide. The ditch is interrupted at *a a* from some cause now unknown. Interior to this is another line of embankment, of less dimensions, and accompanied by a ditch on its exterior. This wall is carried over a large broad mound (*a—m*) somewhat below the summit on the outer side. These walls approach the river, and at that

*From a survey made in 1840 by James McBride and John W. Erwin.

point the inner embankment is very prominent, and the ditch quite deep. The bank of the river at this point is perpendicular, or nearly so, and is about seventy feet high. On the other side the walls are carried to the bank of Big Run, the point *c*, of the outer wall, having been carried down to a lower level. The bank of the stream is inaccessibly steep, being fifty or sixty feet high. These walls embrace an area of a little less than eighteen acres.

The outer wall at the present time is partially destroyed. It resembles a graded roadway. The inner wall towards the west is obliterated.

The large mound, over which passes the inner wall, is a natural formation, composed of gravel, with a thin layer of soil, and is about thirty feet high. It has been opened and a portion of the gravel taken to complete a neighboring road. The small mound, marked M in the plan, is composed of burnt limestone, gravel and sand, and is supposed to belong to that class of mounds denominated "sacrificial." Forty years ago it was ten feet in height, but now is not over six or seven, having been plowed over for many years. A human skeleton and pieces of pottery have been taken from it. In company with Mr. R. Brown I visited this work at the same time we examined "Fortified Hill," and although the enclosure was thickly covered with clover, yet almost at any spot we were able to pick up pieces of pottery made out of clay and burnt shells. Whether this pottery was made by the Mound Builders or the Indians we were unable to determine.

It has been suggested that the large mound was used for a signal station. It is possible that such may have been the case. From it a view of the river may be obtained for a considerable distance in both directions.

This enclosure has been regarded as a defensive work. Its position, with its double line of embankment, strongly confirms this conclusion.

It should be noted that in 1866 the river changed its bed at this point. At that time it cut a new channel to the southeast, and the old bed no longer directs the

water save during a freshet. One bed is now called New River and the other Old River.

The work given in Fig. 55, marked N on the map, is now almost wholly obliterated. It was situated on sections twenty-seven and thirty-four, on the farms of B. T. Bedinger, M. A. Carnaham and R. Wade. It was surveyed in 1847 by James McBride and John W. Erwin. They describe it to have been a perfect circle, enclosing an area of twenty-six acres. The embankment was two feet high, composed of earth taken up evenly from the surface, or else brought from a distance. There

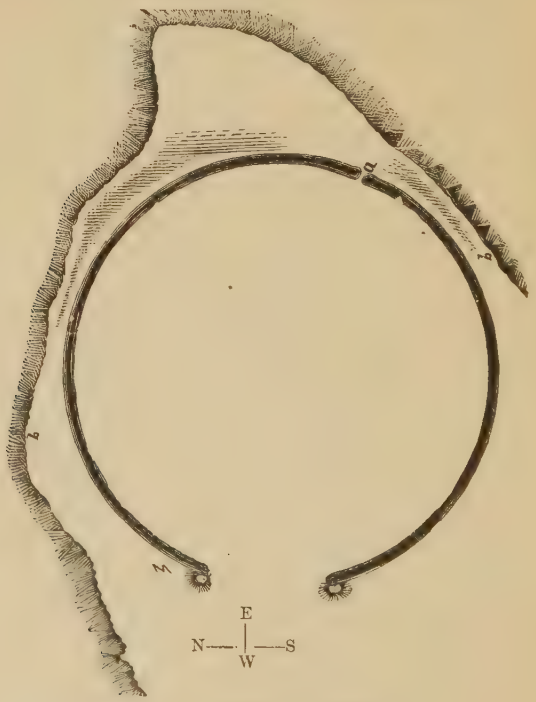


FIG. 55.—SACRED ENCLOSURE.

was an entrance to the west two hundred and seventy-five feet wide, and upon either hand the embankment terminated in a small mound, between four and five feet

high. At the eastern part of the wall was a gateway, the width of which is not given. The plain upon which the work occurs is about fifty feet above the adjacent bottoms. The area of the enclosure is level, and was covered with forest trees, although small, owing to the nature of the soil, which is thin and gravelly.

The mound towards the north, with one hundred and fifty feet of its accompanying embankment, still remains in a grove. The rest is obliterated, owing to the forest having been cleared away and the land cultivated.

This work is classed among the sacred enclosures, its position and form indicating that it was used for religious purposes.

Between this work and the one last described, Mr. Erwin states, there is or was another, but the location has passed out of his memory. It was similar, in construction, to that near Jones' Station. In the hopes of finding it I visited the locality on the eleventh of August. I made diligent inquiry of the people in the neighborhood, among whom was Judge Fergus Anderson, but he knew nothing of it. It is probable that the walls were low and long since plowed down, and as no particular interest is taken in that immediate vicinity in archæology, such a matter would easily pass out of recollection.

Mr. Brown visited and located forty-nine mounds in this township, and found them to vary in height from eighteen inches to twenty-six feet. These mounds are almost wholly located in the southern half of the township. Section thirty-two contains nine, the largest of which is seven feet high by forty-five feet base, being situated in a woods on the farm of John Evans. A shaft was sunk into this mound, which extended to the original soil, but only a thin layer of charcoal and ashes was met with, and that near the bottom. On an adjoining farm belonging to Mr. Evans, on the point of a hill, occurs a small stone mound. A similar mound likewise situated is on the farm of William Brown. Near by is a stone circle, thirty feet in diameter, with a base of eight feet and an elevation of seven or eight inches. On the farm is still another mound located in an old field, and but

little elevated above the surrounding surface, having been plowed over until its appearance, as a mound, is almost obliterated. That it is an artificial mound is evident from the burned earth, the broken shuttles and pieces of pottery that have been found in it. A mound was once located on the farm of Benjamin Brown. Where it stood is now a farm house. In making the excavation for the foundation and cellar it was found necessary to remove it, and during the excavation several stone and bone implements were found, also a skeleton of the ordinary size. Directly over these human remains stood a white oak tree, three feet in diameter. A short distance west of this is another mound (on the farm of William Brown), but, having been plowed over for the last fifty years, is now quite low. Another mound on the same farm is situated on the low ground of the township, being only a few feet above high water mark of the Miami River. It occurs on the face of a low gravelly ridge. Before being disturbed by the plow it is now supposed to have been six feet in height by fifty feet base, but during the last seventy-five years it has been under cultivation, which, together with the action of the elements, has reduced it almost to a level with the ridge. On excavating this mound the skeletons of both adults and children were found. Those found at the bottom of the mound appeared to have been placed there with considerable care. Some had their bodies reclining with the hands thrown over the head, and the knees drawn up. There were two exceptions to this. One had the head resting in the center of the mound with the feet extended to the northwest. The other was ten feet distant with the head to the northwest, and near the outer circle of the mound. The color of this skeleton differed from that of the rest. It appeared red, as though it had been stained with carmine or venetian red. The gravel immediately surrounding it partook of the same color. These two skeletons were found three feet below the original surface. With the former, and surrounding the neck, occurred several perforated teeth of animals, which were used for a necklace or string of beads, and about

the waist were several bird bones, each about an inch in length, which also appeared to have been used for beads.

The skeletons above these were deposited without any perceptible order, the bones being more or less charred, showing that cremation had been practiced, or else human sacrifices offered. A peculiarity of six or eight of the crania consisted in having the occipital bone flattened. This peculiarity is also noticed in some of the skulls which have been taken from the banks of the Great Miami. The relics found with the remains consisted of pestles, fleshers, hatchets, tubes of stone and of baked clay—the clay crumbling as soon as disturbed—flint implements, chips of chert, chalcedony and slate, whistles made from buck's horn, needles and awls of the same, and other bone implements.

It was in this mound that the wand given in Fig. 43 was found. It did not occur with any of the skeletons, although it was on a level with the two mentioned, three feet below the original surface, and in conjunction with a rude pestle and a buck's horn implement, eight inches in length. A small mound also occurs on the land of Henry Grabel.

In section thirty are five mounds, all of which are now small. The two on the farm of Matthias Reisch are quite small, one of which is two feet in height by twenty-five feet in diameter. One foot beneath the top is a layer of burnt clay, which, when raised with a mattock, comes up in large lumps. It bears the marks of having grass or weeds mixed with it, which, on being subjected to the action of fire, burns out and leaves its mould on the clay. This clay is in a silicious condition, presenting the appearance similar to that of brick which has been burned in the arch of the kiln. Two mounds occur on the farm of Murat Halstead, both in open fields. They are about five feet in height by sixty feet in diameter at the base. There is a mound near the northwestern corner of the section, on the farm of Colonel Griffin Halstead. It has been plowed over and its original size greatly reduced. Near this mound was once an aboriginal village. A vast number of implements of all

varieties have been picked up here, and from this spot Colonel Halstead made his collection. Some of the finest specimens he donated to McBride's cabinet, under the impression that the cabinet should never leave the county.

Section twenty-nine contains three mounds, the largest being ten feet in height by sixty feet in diameter at the base. It is located on the farm of E. N. Demoret. On the farm of O. Brown, in a field, is a mound about six feet in height. The one on the farm of James R. Timberman is in an open field, and has been plowed over until it is not over three feet high.

Section seventeen contains three mounds: the largest is twelve feet high by seventy feet in diameter at the base. It is located on the farm of James Wynn. The farm of Nicholas Bachman contains two, the larger being about ten feet in height.

In the northeast quarter of section eighteen, and on the farm of Peter Minton, is a mound that was opened many years ago by Samuel Demoret. He cut a trench through it and found what had the appearance of a stone back-wall or fire-place with coals and ashes against it. Besides these, bones and pieces of pottery were unearthed. At the present time the mound is but slightly elevated above the surrounding surface.

On the farm of Bartholomew Demoret, section twenty, is a mound between three and four feet in height.

On the farms of William Hogan and Charles Borger, section twenty-one, is a group of mounds, six in number. A plan of these is given in Fig. 56. The largest is twenty-six feet high with a base eighty feet in diameter. The rest vary in height, ranging from three to eight feet. The illus-

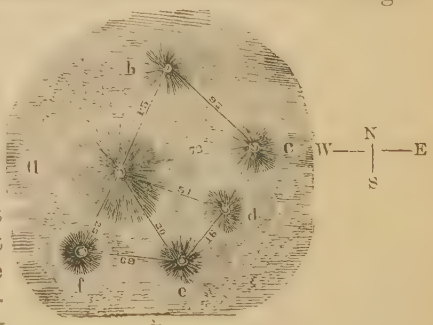


FIG. 56.—GROUP OF MOUNDS.

tration gives the relative sizes, positions and distances of the mounds composing the group. The group is situated on the highest point of land in the township, and from the summit of the largest mound a view of the surrounding country can be obtained. To the east, if the forest trees did not intervene, the city of Hamilton could be seen; while to the south it overlooks the Colerain hills. Its position indicates that it was used as a signal station. A fire on the mound on Wilson's hill, section thirty-one, of St. Clair Township, would be instantly seen, and then the watchman on this mound would warn the people of the valley to flee to the forts in that vicinity. This mound would serve as the signal station for all the enclosures in the township, also a part of those in Fairfield and the Colerain works in Hamilton County.

Mr. L. Demoret looked up the history of and the stories concerning this mound, and writes as follows:

"About the year 1820 this mound was opened by a man named Young, assisted by the Keever brothers, in hopes of finding a treasure-chest. They worked only during the hours of darkness, and in perfect silence, in the belief that the chest never could be reached if a word was spoken while at work. A story was started, and believed by many, that the chest was finally discovered, when one of the excited diggers exclaimed: 'I've got it at last!' whereupon it slipped from his fingers and vanished, leaving a smell of brimstone in the air.

"The tunnel was started on the north side, about half way up the slope, and ran downwards at an angle of thirty-five degrees, for a distance of thirty feet, when the center was reached, from which point it was carried eastwardly several feet. It was stated at the time that the center of the mound gave the appearance of having been once a hut formed of leaning timbers to sustain the great weight of earth. Within this vault were found a stone back-wall, coals and ashes, and human bones.

"Sometime after the work had been abandoned, a party of young fellows concluded to take a look at the place, but on their arrival at the mouth of the tunnel they heard unearthly groans, and the rattling of chains.

They staid to see or hear no more, but ran for home frightened almost out of their wits. Wonderful stories of ghosts and hobgoblins were soon told in connection with the mound. However, it soon leaked out that a mischievous young fellow had provided himself with chains and entered the tunnel in advance of the party for the purpose of frightening them."

Seventy-five yards east of the large mound is another seven feet high by sixty-five feet in diameter at the base. The same distance southwest of the big mound is another mound about six feet high. Half of it is in a woods.

On the farm of the Clark heirs, section twenty-eight, is a mound, but the dimensions are not given.

Two mounds are noted in section twenty-two, southwest quarter, on the school lands belonging to Crosby Township, Hamilton County. A mound also on the farm of S. D. Hedges about five feet in height.

On the farm of B. T. Bedinger, section twenty-seven, in a grove, a few rods north of the circular works (Fig. 55), are three low mounds close together, and on a line running east and west.

Partly in section twenty-six and partly in section twenty-three, on the farms of R. Wade and James Anderson, are three large mounds close together, and on a line with each other, running north and south. On the lower bottom terrace, opposite to each mound, is a corresponding hole or excavation, from which the earth composing the mounds, it has been supposed, was taken.

A small mound occurs west of Indian Creek, section twenty-three, on the farm of Judge Fergus Anderson.

On the farm of J. A. Crawford, section eleven, is a mound five feet high. In constructing the New London turnpike it was partly cut away.

Mr. Brown has paid considerable attention to what he calls "firebeds." He describes these to have been pits sunk into the ground to the depth of from six to twelve feet, with a diameter of from four to five feet. The bottom of these pits are covered to a depth of two or three feet with river-washed limestone, which presents the appearance of having been dumped or loosely thrown in.

These stones bear the traces of fire, and the sides of the walls are charred. The space intervening between the stone and the surface is filled up with soil. Within them pieces of pottery have been discovered.

The "firebeds" are traced through the level lands of sections thirty-four and thirty-three, beginning at the mouth of Indian Creek, and extending into Hamilton County. In these sections they are very numerous. The river here continually encroaches upon its bank, and every year it exposes other pits. In draining a pond, although the ditch was less than a mile in length, yet three of these "firebeds" were exposed. Crossing the river at the mouth of Indian Creek, into Fairfield Township, they are again met with, extending northward to the mouth of Bank Creek. They are again met with in the low lands of that part of St. Clair Township, south of the city of Hamilton.

VII. MORGAN TOWNSHIP.

[From the Notes of Richard Brown.]

Morgan forms the southwestern township of the county. Reily joins it on the north, Ross on the east, Hamilton County on the south, and on the west it extends to the Indiana line.

The land is very much broken, but must be fertile in order to sustain so large an agricultural population. Dry Fork of White Water Creek runs through it in a southeastern direction; also Paddy's Run and Howard's Creek.

No enclosures occur in this township, and only eight mounds are noticed. In the southeast quarter of section fourteen, on the farm of Robert Reese, is a mound four feet high by forty-five feet in diameter at the base. It is in an open field, and has never been disturbed save by the plow. It is located on a hill overlooking the valley of Paddy's Run.

Near the center of section twenty-eight, on the farm of Thomas Griffis, is a mound four feet high by fifty feet base. It is in an open field.

Section twenty-one contains four mounds, the largest being on the farm of Thomas DeArmond, located on the

southwest quarter, near the south line. It is twelve feet in height by seventy feet in diameter at the base. The top of the mound has been removed, and a shaft sunk into it, but not far enough to reach the bottom. Ashes, charcoal and pieces of pottery were thrown out. Near the center of the section, and on the same farm, is another mound. It is five feet high and fifty feet in width. On the farm of George Wynn is a mound, in the woods, of the same dimensions as the above. The remaining mound is in the northeastern part of the section, on the farm of Charles Shields, and measures four feet in height by forty feet in diameter. These mounds are all on high ground, the three last mentioned overlooking the valley of Dry Fork of White Water.

Two other mounds occur, one in section nine, on the farm of Z. T. Whipple, and the other on the farm of William Pugh, in section four. Their dimensions are not ascertained.

In the southwestern quarter of section eighteen, Frank Myers observed a stone which excited his curiosity, and, in order to satisfy himself, dug it up, and found it to be surrounded by a stone circle five feet in diameter. On removing the stone he found traces of fire under them. A similar stone occurs across the brook.

VIII. REILY TOWNSHIP.

[From survey by Richard Brown and J. P. MacLean.]

This township is located immediately north of Morgan, and joins the south line of Oxford Township. Bounding it on the east is Hanover, and on the west is the Indiana line. Indian Creek passes diagonally through it, flowing southeast, and cutting a deep valley in the northwestern part of the township. In places the valley is broad, in others narrow, presenting banks over an hundred feet in height. The bed of the creek is generally composed of drift material, with an occasional outcropping of limestone. The stream has detached hills from the level country, which have the appearance of great oblong mounds, the length of the hill extending parallel with the

direction of the stream. The general surface is rolling, and the soil productive.

The township contains two enclosures, both situated on the farm of James Davis, in section twenty-two, on a hill overlooking the village of Reily. Indian Creek passes between the hill and the village. The valley at this point is narrow, and the village hemmed in by hills. The enclosures are east of the village. On the north is a small stream, along which is the road to Wood's Station. The bank on the west is perpendicular, and about seventy-five feet high. On the north, commencing at Indian Creek, it is also perpendicular, but as the road ascends the hill the bank becomes sloping, until the level land is reached. At the northwest corner is a "way," formed by the junction of the two streams, over which we ascended the hill. That part of the hill on which the enclosures are located is covered with forest trees. The larger of the two earth-works is a rectangle sixty-five feet long and fifty feet wide. The wall is about eighteen inches high and unaccompanied by a ditch. The interior of the work is slightly below the surrounding surface, thus leading to the conclusion that the earth composing the wall was taken up from within the enclosure. A peculiarity of the work consists in having no gateway. There must have been some method of obtaining entrance. Perhaps this was remedied by a gateway in the palisades, which probably were erected on top of the wall. Instead of the square corners, the wall is rounding at the angles. A beech and a sugar tree, each five feet in circumference, are growing on the wall.

After we had made a report on this work, Dr. D. D. Borger, in searching for it, discovered another enclosure situated on the bank of the creek. Both of these works are given in Fig. 57, marked P on the map. Dr. Borger reports that this work is about sixty yards west of the other, situated on a surface that slopes to the south. This work is also a rectangle, measuring thirty feet one way and twenty-four the other, the walls being from twelve to eighteen inches high. The angles are

FIG. 57.—REILY EARTH-WORKS.—DELINEATED BY J. P. MACLEAN,

rounding the same as in the other work. A gateway is represented in the south angle. Of this gateway Dr. Borger says: "I do not think the builders left an opening in the work; for the base of the work, in the gateway, can still be seen, and, besides this, the natural slope of the ground would bring all the force of the water, caught within the work, to its lowest part, sometimes causing an overflow, thus more or less cutting down the embankment, and continuing to overflow occasionally for years would eventually wash it down, and give it the appearance of having been left purposely in that state."

By referring to the illustration it will be seen that the works are parallel, the smaller a little south of the larger.

On the same farm, a little east of the larger work, in an open field, is a mound six and a half feet high by fifty-eight feet in diameter. It is probable that the mound was not much higher than this, for the field has the appearance of having been cultivated for only a few years. On the same farm, in the northeastern corner is a small mound.

On the hill west of the village of Reily, and near the cemetery, on section twenty-one, located in the woods on the farm of P. Wunder, is a mound ten feet high by fifty feet in diameter. Many years ago this mound was dug into, and many earthen vessels taken from it. An oak tree of considerable size is growing on the side of the mound.

A mound is situated on the Enyart farm, section sixteen, and overlooking the village of Reily. This mound has been plowed over for many years. It was originally twelve feet high, but has been reduced to about six feet.

The mound on the farm of George Roberts, section thirty-six, has been opened. Only charcoal was found.

Two mounds occur on section twenty-four. The one on the farm of H. Galloway is nine feet high by sixty-five feet in diameter. Near the top stands a white oak ten feet and five inches in circumference. This mound is located on the table-land, and from its top a view of the hills beyond Indian Creek may be obtained. West of

this mound a few rods, on the farm of S. Bresler, in the woods, is a small mound.

In the northeastern corner of section twenty-six once stood a mound. On removing it twenty-four human skeletons were found. These were arranged in a circle with the heads pointing towards the center.

On the farm of J. B. Morris, section seventeen, is a mound four feet high by forty-two feet in diameter, located in the woods. On its top is a sugar tree eight feet in circumference. This mound stands almost on the brow of the bank of Indian Creek. At this point the bank has almost a perpendicular declivity of one hundred feet.

Section eight contains four mounds, three of which are located on the farm of Samuel Landon. All are situated on high land, being about one hundred and thirty feet above Indian Creek, and overlooking the valley for a great distance. Two of these mounds have been plowed over for the last forty-five years. Mr. Landon states that the one on the brow of the hill was originally about twelve feet high. Charcoal and several large spear-heads have been plowed out, but the bottom has not been reached. The other mound is located in the woods. It is about four feet high. A few years ago a poplar tree, twenty-one feet in circumference, stood on the mound. A trench from the west has been cut into the mound and reaching the center, but no relics were discovered. Across the creek, and on the Smith farm, is the fourth mound, about six feet high. It is located in the woods.

On the farm of J. B. Millikin, section five, is a mound nine feet high by fifty-five feet in diameter. Near the top is a beech tree seven feet four inches in circumference. A few rods north is a depression or excavation called a "bear-pit." It is filled with water during most of the year.

Two mounds occur on the farm of Samuel King, section six. These mounds are about five feet high. On one is a large flat limestone.

A mound once stood on the farm of J. D. Smith, section nineteen. It was removed in constructing the

state line road. No relics were found, although some charcoal was noticed.

By the foregoing enumeration and a glance at the map, it will be noticed that all of these mounds, with one exception, are located along Indian Creek.

Along the creek many Indian graves have been found. Some of these have been filled up with limestone laid with some regularity. Within the vicinity of the village of Bunker Hill quite a number have been discovered.

South of the southeastern corner of Bunker Hill, across the creek, and on a prominent detached hill, a stone box was discovered forty years ago. We visited the spot, saw the excavation and some of the limestone which had been thrown out, and noted the surroundings. The hill is oblong, with steep declivities, and from the summit a view of the beautiful valley is obtained. All we could learn concerning the box was, "There is a mystery concerning it." It is probable that the spot was the site of an Indian grave, and the box consisted of limestone, set up on edge and covered with stone of like material, the whole enclosing a skeleton.

On the western side of the creek is an old Indian trail. In section sixteen it passes one-fourth way down the bank of the stream and over the level track made by a land-slide. In section twenty-two the trail appears to divide, one going farther south, and the other following the bank of the stream in its southeastern direction.

IX. OXFORD TOWNSHIP.

[From a survey by Rev. L. E. Grennan and J. P. MacLean.]

This township constitutes the northwestern corner of the county. Preble County is on the north, Milford Township on the east, Reily on the south, and the Indiana state line on the west.

We here meet with high land. The farms are small, and the agricultural population quite large for the territory embraced. With the exception of two or more sections, the land nominally belongs to Miami University. The trustees of the University "leased the land for ninety-nine years, renewable forever, subject to the

annual payment of a quit rent of six per cent. on the purchase money."

Indian Creek runs through the southwestern corner, and through the eastern part of the township in a southerly direction flows Four Mile Creek. In places the valley of the latter is deep and narrow, and not infrequently presenting bold or precipitous banks.

An ancient fortification occurs on the land of H. H. Wallace, section thirty-six, marked J. on the map. It is situated on a bold headland with precipitous banks, rising sixty feet above the creek. At this point Four Mile makes a remarkable bend, constituting a peninsula

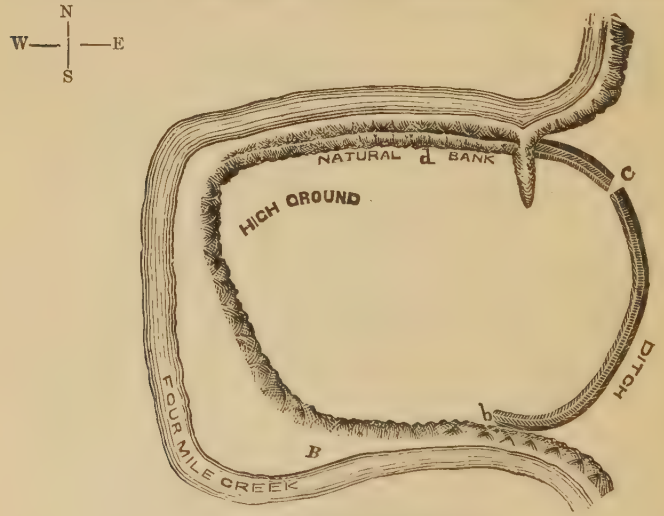


FIG. 58.—ANCIENT FORTIFICATION.*

one thousand and sixty feet across the neck. Across this neck is carried a crescent-shaped wall with an outer ditch, thus enclosing an area of twenty acres. A portion of the wall is on the dividing line between Oxford and Milford Townships. A plan of this work is given in Fig. 58. There is a gateway at the point twenty feet wide. At the point *d* the bank is perpendicular. The letter B represents the low ground bordering the stream.

*From a survey by James McBride, in 1832.

The declivity at the point *b* is steep and difficult of ascent. The wall is carried along the bank at that point, probably designed to protect the flank of the defense. The wall has been plowed down, but is easily traced by a swell in the ground. When we visited the spot the greater portion was in a wheat-field. The wall was indicated by the yellowish color of the soil and the wheat thin, while the ditch was lower and the wheat heavy. Originally the wall was too high to plow over. It was reduced by plowing along it longitudinally, throwing the furrows into the ditch.

The engraving, between the natural bank at *d* and the bed of the creek, represents a terrace thirty feet wide about midway from the top to the water. Some have supposed it to be artificial, but it may have been caused by a land-slide.

The position thus selected is naturally a strong one, and one that is secluded. As we approached the bed of the creek from the west the general aspect was wild and forbidding. We descended over a steep, stony road, and, having reached the bed of the creek, proceeded the rest of the distance on foot. The soil is thin overlying the limestone, and appears to be worn out. We learned that the fort is known in the vicinity as "Chaw-raw Hill," deriving the epithet from some early travelers who encamped there, and eat their food without being cooked.

The township contains thirteen mounds, all of which were kindly located for us by Mr. John M. Stern and Samuel Gath, Jr., before we visited them. We first visited that on the farm of W. D. Jones, section fourteen, near the Horner graveyard. It is four and one-half feet high by forty-three feet in diameter. A drift has been cut in from the south, but the center not reached. Near the top is a sugar tree six feet in circumference. A sugar tree stump on the side exhibited eighty rings of annual growth. The mound is on a beautiful knoll in the corner of a grove. On the same farm, near the residence, once stood two mounds, each eight feet in height. In the center and on the original surface of the ground occurred a human skeleton, surrounded by

charcoal. It was in an extended position, with the feet to the southwest. With it was a perfect jawbone of a child. The human remains were sent to the Dental College of Cincinnati. Several axes, pestles and spear-heads occurred. The hill upon which these mounds were situated overlooks the town of Oxford.

On the W. and J. Mitchel farm, section eleven, in an open field, is a mound two and one-half feet high by thirty-seven feet in diameter. Judging from the base, it is probable that the mound, before it had been disturbed, was not over five feet high. It is located on elevated land. On the farm of James Horner, west side of the creek, same section, is a mound in an open field, five feet high. Several years ago some boys undertook to open this mound, but having been called "Digger Indians" they desisted from the work. Before abandoning the undertaking they secured many implements. On the land of Michael Buckley, same section, is the largest mound in the township. It is picturesquely situated, being located on the alluvial land of Four Mile Creek, and almost entirely surrounded by hills. Near by flows a small but rapid stream. To the southwest a tongue of land projects into the valley. This spot for natural beauty is not excelled elsewhere in the county. The mound is composed of broken limestone, sand, gravel and surface material. Its shape is oblong, and twenty-five feet in height; the diameters being respectively one hundred and twelve by ninety-three feet. It has never been opened, although a slight excavation appears near the top.

One of the finest mounds in the township is that on the farm of D. M. McDill, section four. It is eight feet high by seventy-one feet in diameter at the base. It stands along the roadside, and a portion was removed in grading the road.

A fourth of a mile north of this mound, in Preble County, is another. Not visited.

The mound on the farm of J. J. Fry, section thirty-four, was opened in grading the road. In the center, at the bottom, a skeleton was uncovered, under which was

burnt earth. It was in an extended position, with the feet to the southwest. Several skeletons were exhumed in the eastern part of the mound. The earth composing the mound is different from any in the vicinity. At the present time the mound is five feet high by sixty-eight feet wide.

In the barnyard of R. Ratliff, section thirty-five, once stood a mound. In grading the yard the mound was removed. Some charcoal, but no relics, occurred.

On the farm of Hiram King, section one, in an open field, is a mound three feet high by forty feet base. On the side is an elm stump showing eighty-eight rings of annual growth.

On the farm of Mrs. Nancy Decker, section twelve, are three mounds which have been plowed over for the last forty years. They are now quite low.

On the farm of D. M. Magie, section fourteen, is a mound five feet high by thirty-five feet in diameter. It has been opened and a skeleton taken from it. Two gorgets and two spear-heads were found.

On the land belonging to P. Taylor, section seven, is a mound, located in the woods. It has been opened, and in it were found three perfect spades and two gorgets. These are now in the possession of Samuel Gath, Jr.

A glance at the map will show that four of the mounds are near Four Mile, and on elevated positions. The other eight are within a mile and a half of the creek.

X. MILFORD TOWNSHIP.

[From a survey by J. P. MacLean.]

Milford Township is joined by Preble County on the north, Wayne Township on the east, Hanover on the south, and Oxford on the west. Seven Mile Creek runs through it in a southeasterly direction, and Four Mile enters it in the southwest. The valley of Seven Mile is beautiful, and the soil productive. The hill lands yield an abundant crop.

An interesting enclosure occurs in the southwestern quarter of section three, and northwestern quarter of section ten. A plan is given in Fig. 59, taken from an

old survey made by James McBride and John W. Erwin, marked I on the map. It occupies the second terrace between Seven Mile Creek and Williams' Run. This terrace is about thirty feet higher than the first, and presents a perpendicular bluff. The entire wall, with the exception of the southwestern part, is in open fields, and may be traced by the color of the soil and the corre-

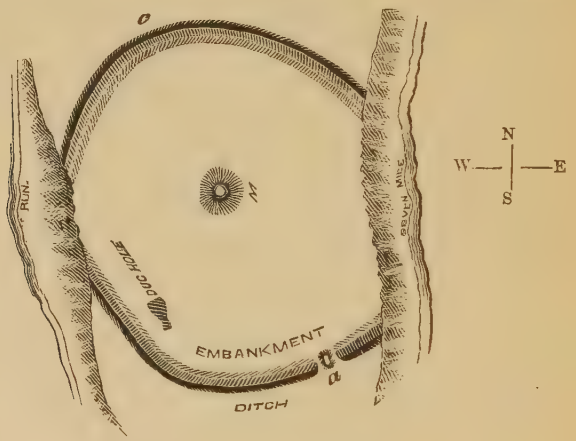


FIG. 59.—ANCIENT ENCLOSURE.

sponding exterior ditch. When this work was originally surveyed, the walls were four feet high, and the ditch of proportionate depth. That portion of the wall in the grove is very distinct, and in places about three feet high. A blue ash stump, on the wall, contains two hundred and one rings of annual growth. Within the enclosure are twelve and one-half acres. It appears that both streams have encroached upon the embankments. Since then both have subsided. At the northern part the stream still washes against the bank of the second terrace, while at the southeastern part it has subsided a distance of ninety feet. The first terrace presents a perpendicular bank of ten feet to the surface of the water. A little lower down the stream has made three other terraces between the first and its bed; the last

appears to have been made within the last five years. It is composed entirely of gravel and sand. The first river terrace is covered with a rich layer of alluvial soil. Near the center of the enclosure is a mound thirteen feet in altitude by one hundred feet in diameter at the base. It is covered with a thick growth of underbrush. An excavation has been made in the top of the mound, out of which several stone axes and other implements have been taken. The road to Oxford runs along the base of the mound, and cuts away about four feet of it. A quantity of limestone regularly laid up occurred in the northeast corner of the work. From the general appearance and location of the work, it was probably intended for purposes of defense. North of the work a few hundred yards is the third river-terrace, rising about fifty feet above the second. While it has a commanding view of the enclosure, yet it possessed no advantages for an assaulting party. It is possible that the work was used for both sacred and military purposes, having belonged to a new settlement.

It is more than probable that there are more mounds in the township than have been particularly noticed. The general features of the land would not especially indicate many mounds. Those which have been observed are small.

On the farm of Walter J. Smith, section one, is a mound located in the woods with small trees growing upon it. The mound is seven feet in height by sixty feet in diameter. It occurs on as high ground as there is in the vicinity.

In the village of Somerville, section three, occurs a mound. It is about one hundred feet in diameter at the base. It has been cut down to within four feet of the level, a partially-graded street running over it. On giving it a hasty examination, I was in doubt as to its being an artificial construction. The exposed limestone appeared to be in the natural position. Gravel and sand enter largely into the structure. I learned that on striking the stone with a heavy substance a hollow sound

is produced. A thorough examination might prove that stone vaults are at the base.

On the Abraham White farm, section six, is a mound of moderate dimensions. It is partly located in Preble County.

The only other mound I could hear of is located on the farm of Thomas Coulter, section nineteen. Dimensions not ascertained.

From the general surface it would appear that some mounds should occur along Darr's Run and Four Mile Creek.

XI. HANOVER TOWNSHIP.

[From a survey by J. P. MacLean.]

Hanover Township is situated south of Milford, on the east it is joined by St. Clair, on the south by Ross, and on the west by Reily.

The general features, as well as the situation, would forbid the supposition that many mounds should be located in the township. The bluff lands of St. Clair separate it from the Miami River, while the streams that are in it are very small, with the exceptions of Four Mile, which runs through the northeastern corner, and Indian Creek, which cuts through the southwestern corner. Notwithstanding this want of large streams, the small ones have cut deep beds in many places. The banks, however, are generally sloping. High hills occur in the southeastern part, undoubtedly caused by the Great Miami.

On the farm of Andrew Lewis, section thirty, is a mound six feet high, in an open field. It has all the appearance of having been plowed over for many years. It is erected on a hill with sloping sides, and overlooking the valley of Indian Creek.

On the James Beatty farm, section thirty-three, is a small mound between the turnpike and the creek.

On the farm of J. Schaffer, section thirty-six, situated on a hill, is a mound which has been plowed down until it is but little higher than the surrounding surface. Burned earth occurred near the base. About twenty-five

yards south of this mound are the remains of an old camp fire.

On the farm of J. Delaplane, section twenty-five, are two small mounds, situated a few rods apart (a rivulet separating them), in an open field. They have been plowed over for many years. One is about four and the other three feet in height. The ground is sloping, and surrounded by hills.

A mound eight feet high occurs on the farm of J. W. Fye, section nine. One-half is in an open field, and the other in a woods. It is located on high ground, near a small stream that flows into Stony Run, a tributary of Four Mile. In the same field is a mound about three feet high by one hundred feet base.

A mound occurs on the farm of E. L. Woodruff, section sixteen, and another on the farm of R. Works, section thirteen.

XII. ST. CLAIR TOWNSHIP.

[Surveyed by J. P. MacLean.]

St. Clair Township is bounded on the north by Wayne, on the east by Madison, on the south it is separated from Fairfield by the Great Miami, and on the west by Ross and Hanover. The township is very irregular in outline, made so by the Miami River, and by attaching a narrow strip to it on the south, which, topographically speaking, should belong to Ross.

With the exception of the land west of Four Mile, and west of the Miami, south of Four Mile, the township is level, and composed of the second river-terrace. The land on the west is high and rugged, the banks probably averaging one hundred feet in height.

During the high water of 1805 the Great Miami changed its bed. Prior to that time the river swept around to the east over the bed of what is now known as Old River, east and south of the island now owned by Hon. L. D. Campbell. Four Mile Creek emptied into the river a little south of what is now the mouth of Two Mile. During that year the Miami broke through the tail race of a mill, and emptied into Four Mile, in section

twenty-one, and since then has occupied that bed. This part is known as New River. A part of the Old River bed, now filled up with sediment, produces a luxuriant growth of corn.

Four Mile Creek flows through the township, and on section eight, forms a junction with Seven Mile.

One enclosure is found, surveyed in 1836 by James McBride and John W. Erwin. This work is situated on the second river-terrace, on the banks of Seven Mile, on sections four, five, eight and nine, marked K on the map. It is formed by two irregular lines of embankment, with an exterior ditch, and enclosing an area of twenty-five

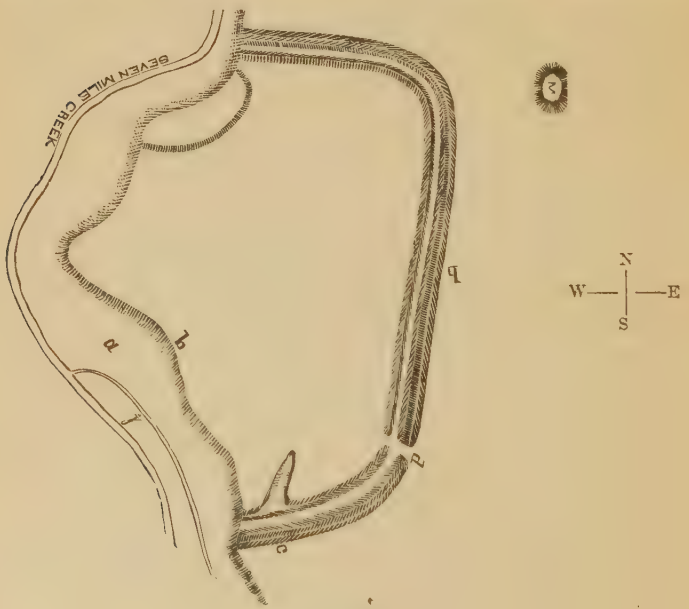


FIG. 60.—ANCIENT WORK.

acres. The embankments are parallel throughout, and the outer wall, at that time (1836), was four feet high, and the inner, three feet. The ditch, out of which the material was taken for constructing the wall, was six feet

deep and thirty-five feet wide. Both walls and ditch had their greatest dimension at the southern portion of the work. The inner wall curves inwardly along the terrace bank for a considerable distance near its southern extremity. There is a gateway at *d* (Fig. 60), thirty feet wide. The letter *b* marks the natural bank eighteen feet high. The low, arable bottom lands between the bank and the creek are indicated by the letter *a*. The mill race is marked by the letter *j*.

A few rods from the northeastern gateway is an elliptical mound, eleven feet altitude; its conjugate and transverse diameters are respectively ninety-two and one hundred and eighteen feet.

At the present time the walls are quite low. Standing on the elliptical mound they can be easily traced with the eye just after the ground has been plowed. In a few years they will be scarcely visible. The mound has been plowed over, and at present is about eight feet high.

The map shows that all the mounds but four are situated west of Four Mile and the Miami, and, with three exceptions, all are on the hill-tops.

The largest mound in the township is that on the farm of A. Logedrost, section eighteen. It is perfectly formed, composed of clay, and sixteen feet altitude by eighty-eight feet in diameter at the base. It is located in an open field, and from the summit may be seen the hills beyond the Miami, and the hills in the distance at the north; the view beyond the valley to the southwest is cut off by a range of hills. A drift has been sent in from the east a distance of ten feet, the material having been taken to fill up a depression in the barnyard. Within this drift was found an American half-dollar of the year 1812. It is slightly worn and much tarnished. From the south a drift has been made a distance of eight feet. Two excavations are in the top, one three feet and the other five in depth. From the latter a portion of a human skeleton, and a grooved stone axe, weighing over four pounds, were taken. I was fortunate enough to secure both the axe and the coin. Less than a fourth of a mile southeast of this mound, situated on the farm of

Adam Hammerle, section nineteen, is another five feet high, evidently plowed over for many years. It is composed of clay, with limestone scattered through it. It is on the summit of a high hill, overlooking the city of Hamilton, the hills of south and east Fairfield, and the hills to the northeast. The range of hills two miles to the southwest limits the view in that direction.

No better view of the valley of the Great Miami is obtained than from "Prospect Point," on the northwestern corner of William Caldwell's farm, section sixteen. The promontory juts out, forming a slight bend in Four Mile. The side of the hill is perpendicular, and about one hundred and fifty feet above the water of the creek. The hill has a considerable slope in all other directions. The scene looking north, east and south is enchanting. The variegated fields, hemmed in by the distant hills, the highly cultivated farms, and the meandering Miami, present a picture which might be reproduced on canvas, but one that pen cannot describe. On the very edge of the declivity of this hill is a beautiful mound composed of clay, fourteen feet high by seventy-five feet in diameter at the base. A fire on this hill would be seen for many miles around. It has been disturbed, but scarcely enough to perceptibly deface it. A little west of this, on the farm of J. Betz, is a small mound.

In section nine Four Mile makes an acute bend, and projecting into it is a headland, upon the top of which is the farm of William Parker. In his orchard, on the very summit, are three mounds, the largest being the southern one. It is oblong and ten feet high; its conjugate and transverse diameters are seventy-five and one hundred and twenty feet respectively. Near the top of this mound some human bones were exhumed, and in conjunction with them three copper hatchets. Three hundred and sixty feet north of this mound is another, ten feet high by ninety feet in diameter, composed of limestone and surface material. Between these two mounds, but not in a direct line, is a small mound about four feet high.

The orchard prevented an observation of the sur-

rounding country, but from this point the valley of Four Mile to the west, Seven Mile to the north, and a portion of the Miami Valley to the east, and the hills of Fairfield to the southeast could be obtained, if the trees were removed. A fire on any of the prominent mounds, especially on that of Madison, could be seen.

A long, narrow ridge of land, running nearly east and west, in section thirty-one, and belonging to Pollock Wilson, is the most prominent point close to the city of Hamilton. On this ridge are three small mounds. The one located in the rear of the dwelling is now about eighteen inches high, and used for a flower bed. The other two are in a grove, one forty feet and the other forty-eight feet in diameter. Both are three and a half feet high, and four feet apart. Upon one is a red oak stump two feet in diameter. On the adjoining hill to the south, belonging to John W. Wilson, is a mound of about the same size.

Section seven contains five mounds, three of them located on the farm of S. Crane. The two in the field are low, one of them containing burnt clay. Out of this some implements have been taken; also plaited hair in a charred condition. The remaining mound is four feet high, and located in the woods. The other two mounds, located on the farms of J. Garver and A. Shobert, are small. On the farm of A. Werner, section eighteen, is a low mound.

Within the corporation of the city of Hamilton, on the land of Henry Gray, near the tile factory, once stood a mound, composed of clay. A number of implements have been taken from it.

The farm house of D. F. Dick, section thirty, is built on a mound.

In digging the cellar for the farm house of T. L. Rhea, section twenty-nine, a skeleton was disinterred. Near by is a mound out of which other skeletons have been taken. In the northwestern quarter of same section occurs an interesting formation, on the same estate, situated between the two forks of Two Mile. It consists of a ridge about a quarter of a mile long, one hundred

feet wide at the base, and ten feet high. It bends in and out and rises and falls, giving it the appearance of a serpent in motion. At the southern extremity, a few feet distant from the ridge, and on an exact line with it is a mound of the same height and width, thickly covered with the ailantus. Into this mound a shaft five feet in depth has been sunk, and at the bottom burnt limestone occurred. The ridge is covered principally with the sugar tree. The ridge is composed of clay, while on either side the land is flat and damp. We noticed on this damp ground four fungous plants, in a row close together, each being not less than eighteen inches in diameter, and almost perfectly round.

I am of the opinion that this ridge or tongue is a natural formation, and also the mound. The mound may have been used as a place of burial, or the burnt stone may have served as a hearth for some ancient hunter who had here sunk a pit in order to hide the blaze of the fire from the keen eye of an enemy.

On the farm belonging to the estate of L. Snider, section twenty-one, are two small mounds. In the northwest corner of same section, on the farm of W. A. Elliott, is a mound five feet high, situated on a sandy surface, and for several years has been plowed over. Near the north end of the railroad bridge, spanning the Miami, on the farm of G. Warwick, in an open field, is a mound about five feet high.

On the farm of J. Warwick, section eight, is a mound seven feet high. It is on high ground, and from it, if the land was cleared of timber, the mound on "Prospect Point" could be seen. A trench has been dug into this mound, and from it some human bones and stone implements were taken.

On the farm of Mr. Gebhart, section fourteen, situated on a hill, is a mound six feet high.

The mound on the estate of W. K. Walker, section four, will be considered under the comments on the temple mound of Wayne Township.

Indian graves are frequently met with along the west bank of the river; also along Seven Mile. Several

skeletons have been dug up on the farm of Robert Hueston, section nine. In a gravel pit on this farm a mastodon's tooth, now in my possession, was found. A mammoth's tooth, now in the possession of G. B. McKnight, was found while excavating for a cellar in the city of Hamilton.*

XIII. WAYNE TOWNSHIP.

[Surveyed by Dr. J. B. Owsley and J. P. MacLean.]

Wayne Township is bounded on the north by Preble County, on the east by Madison Township, on the south by St. Clair, and on the west by Milford.

The highest point of land in the county is situated in this township, on the farm belonging to the heirs of W. W. Phares, section nine. Its elevation is six hundred and forty-two feet above the Ohio River at Cincinnati. Notwithstanding the fact that the land of this township is considerably elevated, yet none of the higher lands of the county are more fertile.

In this township we meet with two enclosures. One of these is situated on the farm of Isaac Snively, section thirty. It occurs on the second river-terrace between Seven Mile and Nine Mile, bordering on the bank of the latter. The work is composed of an embankment without any opening, and an interior ditch enclosing an area of about eight acres.

Fortunately this work was surveyed, in 1840, by James McBride and John W. Erwin, and thus a plan of it has been preserved. An illustration is given in Fig. 61. It is marked H on the map. At the present time it is utterly destroyed, with the exception that the ditch on the southwest may be traced from the turnpike to the railroad, the latter cutting away the southern extremity. Within the enclosure were two beautiful oblong mounds. Nearly the whole of the mound in the center was removed in constructing the Eaton turnpike. During the excavation a quantity of bones was discovered, but nothing definite was ascertained concerning them. The

*In locating the mounds of this township, I received much valuable assistance from G. B. McKnight.

other mound has been partly excavated, and the remaining portion is under cultivation.

On the farm of John Weaver, section fourteen, is one of the most interesting works in the county. It is situated upon what is known as upland, or the earliest

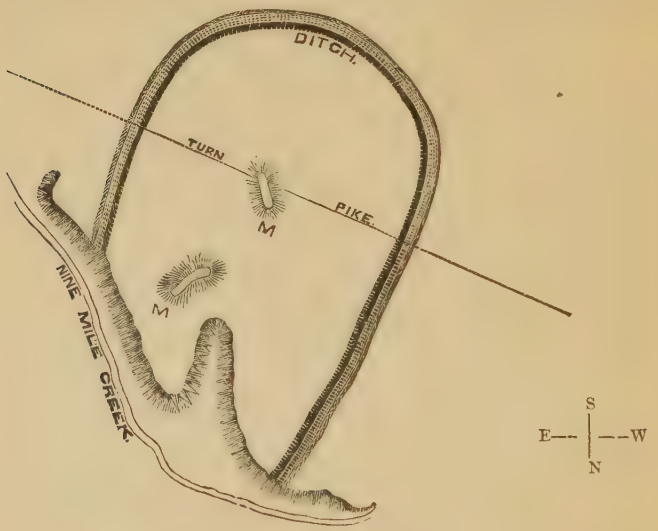


FIG. 61.—ANCIENT ENCLOSURE.

formation. An illustration is given in Fig. 62, marked G on the map. This work is a perfect circle two hundred and thirty feet in diameter. The walls are two and a half feet high, and accompanied by an interior ditch. At the east the line of circumvallation is broken by a gateway twenty-three feet wide. The enclosure is situated in a woods with forest trees growing around, within and on the walls. On one oak stump, occurring on the top of the embankment, I counted two hundred and seventy-two rings of annual growth.

Within the enclosure is a mound partially surrounded by hillocks. This mound is two feet high by twenty-two feet in diameter at the base. On it is a white oak stump having two hundred and twenty-six annual rings of

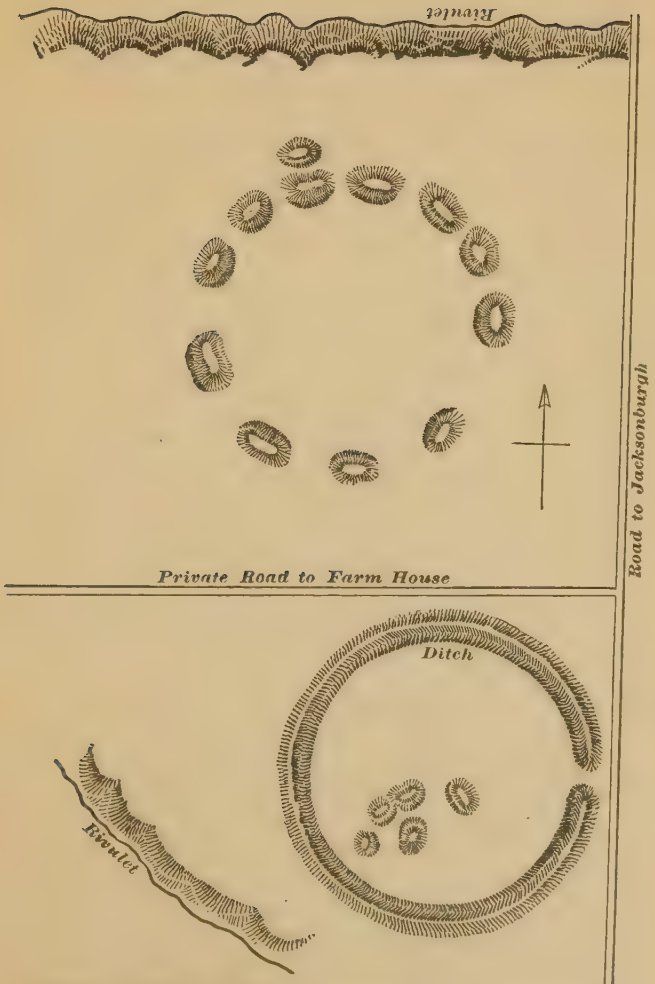


FIG. 62.—JACKSONBURG WORKS.—DELINEATED BY J. P. MACLEAN.

growth. Three of the hillocks surrounding it form a section of a circle, but the fourth is in almost a direct line towards the gateway. The corresponding depression to these four hillocks faced the center mound. This excited our curiosity. While the hillocks with their depressions were exactly of the same kind as those made by uprooted trees, yet the cavity in every instance facing the mound was a puzzle. It was not likely that four trees should fall in such a manner as to produce this result. Dr. Owsley thought we might discover something in the vicinity that would unravel or make clear this problem. One hundred and forty-five feet north of this enclosure we came upon twelve hillocks, eleven of which made a complete circle two hundred and thirty feet in diameter, or exactly of the same diameter as the enclosure. All of these eleven hillocks, except one to the southwest, had their corresponding depressions facing the center. A tree had grown upon the one to the southwest and fallen inwards, thus leaving a cavity on the exterior. We could find no other hillocks in the immediate vicinity. We knew it was not reasonable to presume that eleven trees on the line of a circle should fall, and, in every instance but one, leave the corresponding depressions so as to face each other. We came to the conclusion that a plan for a work had been here laid out, the mounds or stakes had been set, and then for some cause the work was abandoned. It may have been the intention of the builders to connect the two, but as to this we are entirely left to speculation. The twelfth mound is at the north and not more than five feet from one of the other mounds. It was thrown up for a purpose, but whether or not as part of a plan for a graded way no one can tell.

This work gives us the clearest and most positive proof that the ancient engineers first planned and then executed their work. Taken in connection with the incomplete work in Union Township and the unfinished works at Alexandersville it gives us quite an insight into the methods of thought as exhibited by the ancient engineers.

So far as we could ascertain there are but five mounds in the township. That on the farm of R. D. Leslie, section twelve, so far as known, has not its parallel in the county. It is twenty feet high and five hundred and forty feet circumference at the base. It is composed of gravel and surface material. In November, 1868, it was excavated on the east side for the purpose of obtaining gravel. This excavation extends to the center, but does not reach to the bottom or the original surface of the ground. The opening thus formed brought to light the fact that within this mound was a series of stone vaults superimposed one above the other and reaching to within one foot of the apex, the number of vaults in each layer or level increasing in number as we proceed from the top to the bottom. These vaults are not immediately contiguous but separated by a filling of gravel, more or less mixed with clay and surface material. The vaults are composed of limestone averaging in size three feet in length and breadth by three inches in thickness, the stone being set upon end at an angle of seventy-five degrees. Within each vault occurred a human skeleton, which must originally have been placed in a sitting posture, for the skeleton had fallen into a heap. A portion of eight skeletons was sent to the Smithsonian Institute by Dr. Owsley. No implements have been found within the mound, but ashes and charcoal abound. I noticed that the loose limestone on the top of the mound exhibited traces of fire.

On the farm of Hampton Long, section twenty-four, is a mound which has been partially cut away in order to grade a road. The accompanying ditch of this road passes through what was the center of the mound. At the base of the tumulus was a skeleton in an extended position. On the chest was a spear-head made from blue chert, nearly six inches in length and two inches broad just below the barbs, the whole being symmetrical. I was fortunate enough to secure this relic. That part of the mound now remaining is five feet high.

Two mounds are located on what is known as Snively's Hill, section twenty-six. This hill is five hundred and sixty-three feet above the Ohio River at Cincinnati. One is situated on the farm of Henry Snively and the other on the farm of J. Good. The former is in an open field and the latter in the woods. Both are about six feet high. This commanding hill would be of importance to the Mound Builders, for it overlooks the broad acres of the Miami on the south, and to the ancient tillers of the soil, in the valley, it would serve for an additional beacon light.

I have indulged in some speculation concerning the mound on the farm of Joseph Henry, section thirty-six. This mound is situated in an open field near the base of the slope of the table-land, or where it joins the second river-terrace. It has been under cultivation during the last fifty years. A great many skeletons have been taken from it and every year the plow turns out others. Forty years ago people would repair to the mound in

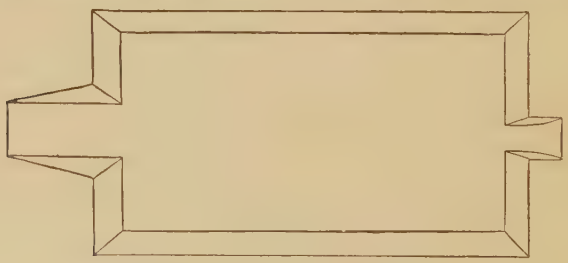


FIG. 63.—FIRST PLAN OF THE TEMPLE.

order to collect stone mortars, cups, pottery, and other aboriginal relics. Fragments of burnt limestone may still be seen on the top. The mound is a rectangle two hundred and twenty-five feet long by one hundred and twenty feet broad, and seven feet high. Its direction is from southeast to northwest.

On first examination I concluded it must be a temple mound, the square corners and perpendicular sides of which had been destroyed by the corroding influence of

time and effectually effaced by the white man. To the southeast appeared to be a graded way forty-five feet long, and to the northwest another way fifteen feet long. Upon these measurements I made out the plan as given in Fig. 63. It will be noticed as a matter of curiosity that the length and breadth of the mound, as well as the length of the two graded ways, are divisible by fifteen. It would not necessarily follow that the structure was built on this basis, but is simply a coincidence. Upon reflection it occurred that the graded way at the northwest was simply due to the earth having been thrown out by long continued plowing. Hence this gateway

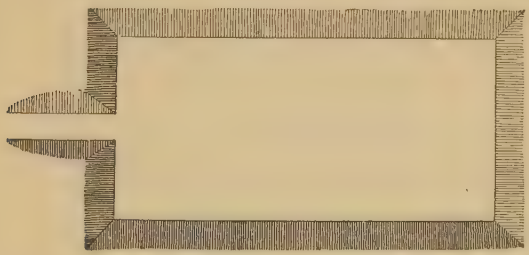


FIG. 64.—SECOND PLAN OF THE TEMPLE.

must be only assumption, which consequently led to the construction of the plan as given in Fig. 64. It should be noticed that the mound was not level on top, but convex or rounding. This fact would not conflict with the supposition that it was a temple, for it must be considered that the action of the plow would constantly throw the earth away from the sides, thus leaving the center elevated.

An examination of the mound on the farm of the Walker heirs, St. Clair Township, dispelled all dreams of a temple mound in Butler County. This mound is of about the same size, located in a woods and covered with forest trees. It bears no resemblance to a temple mound except in size. What were taken for graded ways are simply slopes, the longer indicating that it had been intended to lengthen the mound. Before the forest

was cleared off it is more than probable that this mound did not appear unlike the one on the Walker farm.

XIV. MADISON TOWNSHIP.

[From the notes of J. W. Reppeto and W. B. Poast.]

Madison Township is bounded on the north by Montgomery County, on the east by Warren, and separated from Lemon Township by the Miami River, which also separates it from Fairfield on the south. On the west it is joined by Wayne and St. Clair. It is very irregular in shape, the western line being ten miles long, the eastern three and one-half, the northern six, and the southern extremity two.

That part of the Miami River Valley lying in this township is very narrow, with the exceptions of ten sections in the southern extremity and a few sections about Poast Town. The hill land is not what may be called fertile, although some of it yields well. Elk Creek and Brown's Run flow through this township in a southerly direction, cutting deep valleys, which in places are bordered with high hills having steep declivities. The water flows over beds of limestone, exposing a formation rich in fossils.

No enclosures occur in the township. Twelve mounds have been observed, the largest of which is the Great Mound of Butler County located on the land of T. Henry, section nineteen. Its altitude is forty-three feet with a circular base of five hundred and eleven feet. The hypothenuse is eighty-eight feet, the contents being eight hundred and twenty-four thousand four hundred and eighty cubic feet. At twenty-two cubic feet per load, this would give thirty-seven thousand four hundred and seventy-six wagon-loads, which, allowing ten loads per day, would take one man nearly twelve years (not including Sundays) to remove the mound, say a distance of one mile.* This will give us some idea of the great labor bestowed upon this structure. But when we consider that the most primitive methods were used, and the earth carried

*From a computation made by Dr. J. B. Owsley.

in sacks thrown across the shoulders, or else in earthen vessels, the labor, at once, is seen to have been stupendous. This mound has a commanding view of the country for twenty miles around. It is located on a high elevation, and from its altitude of observation a fire on the Miamisburg mound could be seen, and then the watchman here kindling the fire in response would give warning to the people throughout the valley to leave their sacred enclosures and their homes, and immediately flee to the forts on the hill-tops for protection. If the theory that mounds as posts of observation be true, then this was certainly one. Its position and nature indicate it. Its primary object may have been for sepulture, but evidently having been enlarged, it was used for a signal station. Many years ago some persons undertook to open it. The excavation is but slight and at the top. Some bones and traces of fire occurred.

I superintended the opening of the mound on the farm of E. Mattix, same section. It is located about one-third of a mile southeast of the Great Mound. It is six feet high with a diameter of eighty feet. It has the appearance of not having been finished, for there is quite a level area on top. The mound is composed of clay with a slight mixture of surface material. At or near the bottom the clay was so compact as to make it difficult to penetrate. In this lower layer of clay were distinct traces of fire.

One-half mile north of Miltonville, on the land of E. Mattix, section thirty, is a mound three hundred feet in circumference and five feet in height.

On the farm of Robert Landis, section thirty-two, situated a little over a mile northeast of Trenton, is a mound seven feet high by three hundred and six feet circumference at the base. This mound commands a fine view of the Miami Valley, and from its top the Miamisburg mound may be seen.

On the farm of Phebe Long, section twenty-nine, one mile northeast of Miltonville, is a low mound two and one-half feet high by forty-five feet diameter.

A mound about six feet high occurs on the farm of

Hannah Holderman, section seventeen, just back of the Lutheran Church.

On the farm of D. Barcalow, section eleven, occur the remains of a mound, through the center of which passes the Cincinnati, Hamilton & Dayton railroad. It was in this mound that the relics were found which are spoken of on page 73. Besides these there were found human bones and flint implements. Before this mound was disturbed it was from fifteen to twenty feet high by one hundred feet in diameter. It stands on the alluvial lands.

A mound occurs on the farm of R. Marsh, section twelve; one on the estate of P. Selby, section thirty-six; and another on the farm of R. Marsh, section two. All these mounds range from eight to ten feet high, with a diameter at the base of about forty feet.

On the land of Jacob Kemp, section sixteen, are two small mounds, one being a little above the level surface, and the other about four feet high. The latter has been excavated, but only charcoal was obtained.

XV. LEMON TOWNSHIP.

[From the notes of R. T. Shepherd.]

This township is triangular in shape. On the west and north it is separated from Madison by the Miami River. On the east it joins Warren County, and on the south Liberty Township. Nearly one-half the township is composed of alluvial lands. The hill lands vary in fertility. Dick's Creek flows through the township in a westerly direction.

No enclosures and only four mounds occur, the largest of which is situated on the farm of J. B. Martin, section thirteen. It is oblong, the greater diameter being one hundred and twenty-five feet, and the lesser seventy feet. It is ten feet high, located in an open field, and has been plowed over for many years. Near the top is an old and decayed oak stump two and a half feet in diameter. On the same farm is another about five feet high. It is located in the woods. On the farm of Austin McCreary is a mound nine feet high, located in a field and partly destroyed.

On the farm of E. Britton, section eighteen, is a mound four feet high by one hundred and eighty feet in circumference. It is located in a woods, on a high hill, and commands an extended view of the surrounding country.

XVI. CABINETS.

It is a lamentable fact that until within the last few years but little interest, on the part of the citizens of Butler County, has been taken in these ancient remains. The zeal exhibited and interest taken in this subject thirty years ago by James McBride and John W. Erwin should have stimulated the people. The splendid cabinet of James McBride was sold at executor's sale, and thus allowed to leave the county, and perhaps the country. Some indignation was manifested on account of this act, for many of the specimens were contributed under the impression that the cabinet was to be a permanent thing. The present interest is partly due to traders, hucksters and speculators who have been through the county picking them up. The system resorted to by some of these traders is to barter trinkets for them, placing fictitious values on their wares. Private collections were made from 1879 to 1888, but most of them have been parted with. Attempts were made to form geological, archæological and historical societies in the county, but there were so few interested in such enterprises that the efforts were abandoned.

LOCATION OF SOME OF THE ANCIENT ENCLOSURES OF OHIO, INCLUDING BOTH MILITARY AND SACRED.

(*Corrected from Ohio Centennial Report.*)

VALLEY OF THE GREAT AND LITTLE MIAMI RIVERS.

Butler County.

1. Union township, Sec. 14.
2. Union township, Sec. 8.
3. Fairfield township, Sec. 8.
4. Fairfield township, Sec. 15.
5. Fairfield township, Sec. 10.
6. Fairfield township, Sec. 16.
7. Ross township, Sec. 12.
8. Ross township, Sec. 13.
9. Ross township, Secs. 27 and 34.
10. Reily township, Sec. 22.
11. Oxford township, Sec. 36.
12. Milford township, Secs. 3 and 10.
13. Wayne township, Sec. 14.
14. Wayne township, Sec. 30.
15. St. Clair township, Secs. 4, 5, 8, and 9.

Hamilton County.

1. Large earth-work, Cincinnati, now obliterated.
2. North Bend; a large fort.
3. Colerain township, east bank of Great Miami.

Montgomery County.

1. Three miles south of Dayton, east bank Great Miami.
2. Alexandersville.
3. South of Germantown.

Miami County.

1. Stone circle, near Piqua.

Warren County.

1. Fort Ancient.

Clermont County.

1. Milford, on Little Miami.
2. Newtown, on Little Miami, left bank, three miles up stream.

Preble County.

1. Fort, six miles southeast of Eaton.

Green County.

1. Seven miles east of Xenia, Sec. 24, T. 4, R. 8.
2. Massie's Creek, west bank Little Miami.

VALLEY OF THE SCIOTO RIVER.

Scioto County.

1. Portsmouth.
2. Pond Creek, west bank of Scioto; effigies.

Pike County.

1. Seal township.

Ross County.

1. Franklin township.
2. Big Bottom canal.
3. Chillicothe.
4. Twelve miles north of Chillicothe.
5. Alderson's.
6. Kilgore's Mill.
7. Three miles south of Chillicothe, Sec. 18, T. 9, R. 22.
8. One mile north of Hopeton.
9. Near Bourneville, on Paint Creek.
10. Near Frankfort, one mile east.
11. One mile south of Bourneville.
12. Stone fort, one and a half miles south of Bourneville.
13. Harp-shaped work, two and a half miles southeast of Bourneville.
14. Five miles north of Chillicothe.
15. Hopeton.
16. East bank of Scioto, opposite No. 15.
17. Mound City, three miles north of Chillicothe.
18. Liberty township, southeast of Chillicothe.
19. Two miles southwest of Chillicothe.
20. Fifteen miles west of Chillicothe.
21. Bainbridge.
22. Stone circle, two miles west of No. 12.

Pickaway County.

1. Circleville; principally obliterated.
2. Near Tarleton.
3. South line of county, on the Scioto.
4. North line of county, west bank of Scioto.

Franklin County.

1. One mile west of Worthington.
2. Three miles southwest of Columbus.
3. Four and a half miles north of Worthington.

WATERS OF LAKE ERIE.

Ashtabula County.

1. Fort on Conneaut Creek, three miles southwest of Conneaut.
2. Fort on Pymataning Creek, Wayne township.

Lake County.

1. Fort, three miles east of Painesville, on Grand River.

Cuyahoga County.

1. Fort; lot 313, Newburg, near Cleveland.
2. Fort; right bank of Cuyahoga; south line of Newburg township.
3. Fort; left bank of river, near center of Independence.
4. Fort; right bank, mouth of Tinkers Creek, south side.
5. Forks of Rocky River, below Berea.

Summit County.

1. Fort; lot 79, Northfield; right bank of Cuyahoga.
2. Fort; Boston, right bank, two miles south of Peninsula.
3. Fort and caches, both sides of the river, near the line between Boston and North Hampton.

Medina County.

1. Fort; Rocky River, Weymouth.
2. Circle, half mile east of Granger.
3. Canal, half mile west of Medina Centre.

Lorain County.

1. Fort; east bank of Black River, two and a half miles from Lake Erie.
2. Fort; east bank, at French Creek, Sheffield township.
3. Fort; east bank of Vermillion River, Brownhelm township.
4. Fort; west bluff, of Vermillion River.

Huron County.

1. Three enclosures at the Forks of Huron River, two miles west of Norwalk.

Erie County.

1. Stone fort; Danbury township, near Lake shore.
2. Fort; Kelly's Island, south side, near the landing.

Lucas County.

1. Inclosure, south bank of Maumee, two miles above Toledo.
2. Forts; two in Toledo.

Wood County.

1. Fort; Eagle Point.

WATERS OF MUSKINGUM, HOCKING, AND OTHER RIVERS.

Licking County.

1. Near Newark; a very large and complicated work, with several forts on the adjacent hills.
2. Two miles east of Jackson, a small inclosure and stone mound.
3. Granville, two miles east. Fort.
4. Granville, one mile south. Fort.
5. Jackson, two miles east. Fort.
6. Fort, three miles south of Newark. In this county are a large number of mounds, five to forty feet high.

Richland County.

1. Near Mansfield.

Washington County.

1. Marietta.
2. Cats Creek, east bank of Muskingum.
3. Lowell, on Muskingum River.
4. Adams township.
5. Belpre.

Athens County.

1. Four miles north of Athens.

Highland County.

1. Fort Hill.

Perry County.

1. Stone fort, five miles northwest of Somerset.

Fairfield County.

1. Rock Hill.
2. Three miles west of Lancaster.
3. Several groups near the Hocking River.

Jackson County.

1. Near Jackson, two miles north, two small works.

Knox County.

1. A group of forts near Fredrickstown,

Ashland County.

1. Ramsey's Fort, Jackson township, Sec. 28.
2. Metcalf's Fort, Mohecan township, Sec. 21.
3. Winbigler's Fort, Mohecan township, Sec. 9.
4. Gamble's Fort, Montgomery township, Sec. 8.
5. Bryte's Fort, Clear Creek township, Sec. 26.
6. Shambaugh's Fort, Green township, Sec. 18.
7. Parr's Fort, Green township, Sec. 19.
8. Darling's Fort, Hanover township.

Wayne County.

1. Tyler's Fort, Plain township, Sec. 24.